Nos. 79-1429 and 79-1583

JAN 14 1981

In the Supreme Court of the United States

OCTOBER TERM, 1980

AMERICAN TEXTILE MANUFACTURERS INSTITUTE, INC., ET AL., PETITIONERS

v.

RAY MARSHALL, SECRETARY OF LABOR, UNITED STATES DEPARTMENT OF LABOR, ET AL.

NATIONAL COTTON COUNCIL OF AMERICA, PETITIONER

v.

RAY MARSHALL, SECRETARY OF LABOR, UNITED STATES DEPARTMENT OF LABOR, ET AL.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA CIRCUIT

BRIEF FOR THE FEDERAL RESPONDENT

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QUESTIONS PRESENTED

1. Whether the occupational health standard for cotton dust, which is based on the conclusion of the Secretary of Labor that technology exists to meet the standard and that the costs of compliance are well within the capability of the textile industry, is "feasible" within

the meaning of Section 6(b)(5) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 655(b)(5).

2. Whether Section 3(8) of the Act, 29 U.S.C. 652(8), which provides that a health standard must be "reasonably necessary or appropriate to provide safe or healthful employment and places of employment," requires the Secretary to conduct a cost-benefit analysis and determine that the costs of a particular standard are "justified" by the expected benefits.

3. Whether the transfer and income protection provision of the cotton dust standard is a measure that is "reasonably necessary or appropriate to provide safe or healthful employment" within the meaning of Section 3(8) of the Act, 29 U.S.C. 652(8).

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OPINIONS BELOW

The opinion of the court of appeals (Pet. App. 19-102)[1] is reported at 617 F.2d 636. The Secretary's standard for occupational exposure to cotton dust, and the statement of reasons supporting the standard, are published at 43 Fed. Reg. 27350-27399 (1978), as amended at 43 Fed. Reg. 28473-28474, 35032-35035, and 56893-56894 (1978).

JURISDICTION

The judgment of the court of appeals was entered on October 24, 1979 (Pet. App. 26), and petitions for rehearing were denied on January 11, 1980 (Pet. App. 103-105). The petition for a writ of certiorari in No. 79-1429 was filed on March 14, 1980, and the petition for a writ of certiorari in No. 79-1583 was filed on April 9, 1980. On October 6, 1980, the Court granted the petition in No. 79-1583 in full and granted the petition in No. 79-1429 limited to questions 1, 2 and 4 (J.A. 489). The jurisdiction of this Court is invoked under 28 U.S.C. 1254(1).

STATEMENT

A. Introduction

Byssinosis, which is commonly known as "brown lung" disease, is a painful and permanently disabling respiratory disease that is induced by the inhalation of cotton

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[1] "Pet. App." refers to the appendix to the petition in No. 79-1429. "J.A." refers to the joint appendix filed in this Court. "App." refers to the joint appendix filed in the court of appeals. "Leg. Hist." refers to the Subcomm. on Labor of the Senate Comm. on Labor and Public Welfare, 92d Cong., 1st Sess., Legislative History of the Occupational Safety and Health Act of 1970 (Comm. Print 1971). For convenience, we shall refer to the Secretary, the Assistant Secretary, and the Occupational Safety and Health Administration as "the Secretary" or "the agency."

dust.[2] Most victims of byssinosis are textile workers,[3] among whom the disease has been known to be widespread since at least the beginning of the eighteenth century (Pet. App. 29 & n.11). The prevalence of this disease, which Congress found to exemplify the "magnitude of [our occupational health] problem" (Leg. Hist. 143), played a central role in the decision to enact the Occupational Safety and Health Act of 1970, 29 U.S.C. 651 *et seq.*, which aims "to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources" (Section 2(b) of the Act, 29 U.S.C. 651(b)).

On May 29, 1971, the Secretary, as authorized by Section 6(a) of the Act, 29 U.S.C. 655(a), adopted a preexisting federal standard as the occupational health standard for cotton dust.[4] The 1971 standard identified

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[2] Numerous investigators have established the relationship between cotton dust and the disease. See J.A. 15-22; Pet. App. 108-124; App. 210-217, 218-228. Despite extensive research, however, medical science has not yet identified the particular component of cotton dust that causes byssinosis. 43 Fed. Reg. 27352-27355 (1978). Medical science thus broadly defines "cotton dust" to include all dust in the working environment of employees who work with cotton, without regard to whether the origin of the dust can be traced directly to the cotton plant, and the Secretary has adopted that definition for regulatory purposes. 43 Fed. Reg. 27354-27355 (1978).

[3] The textile industry is divided into two basic operational segments: (1) yarn manufacturing, and (2) weaving of yarn into cloth. Between 126,000 and 200,000 workers are exposed to cotton dust each day in yarn manufacturing operations consisting of opening, picking, carding, drawing, roving, spinning, winding, spooling, twisting, and warping. See 43 Fed. Reg. 27365, 27379 (1978). Many additional workers are exposed in the weaving process (App. 517).

[4] Under Section 6(a) of the Act, 29 U.S.C. 655(a), the Secretary was authorized during an initial two-year period to adopt any existing federal health and safety standard or any national "consensus" standard. In 1969, the Secretary had set an airborne dust concentration limit as an occupational health requirement for public contractors under the Walsh-Healey Act, 41 U.S.C. 35(e) (34 Fed. Reg. 7946, 7953 (1969)). That limitation incorporated the recom-

a maximum permissible exposure level (PEL) for airborne concentrations of cotton dust and required that employers meet that level through the use of feasible engineering controls, with respirators to be used only where the PEL could not be achieved by engineering controls. 29 C.F.R. 1910.1000(e).[5]

On June 19, 1978, after extensive informal rulemaking proceedings, the Secretary promulgated a more stringent health standard under Section 6(b) of the Act, 29

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mendation of the American Conference of Governmental Industrial Hygienists (ACGIH) that exposure be limited to 1,000 micrograms of total dust per cubic meter of air (1000 ug/m^3) averaged over an eight-hour workday. "Total dust" includes both respirable and nonrespirable dust fractions. In 1978, when the Secretary set the present standard, he followed the weight of current scientific opinion by keying the maximum exposure level to the respirable dust fraction (43 Fed. Reg. 27355 (1978)). ACGIH had likewise adopted that measuring device in 1974, when it issued a revised recommendation that exposure should be limited to 200 ug/m^3, the standard that the Secretary eventually adopted here for all operations except slashing and weaving. See 43 Fed. Reg. 27351 (1978).

In all operations except slashing and weaving, the 1971 standard —1000 ug/m^3 of total dust—is roughly equivalent to 500 ug/m^3 of respirable dust, as measured by the 1978 standard. See J.A. 464-465; App. 384; 43 Fed. Reg. 27355 (1978). Slashing and weaving are exceptional because a substantial portion of the respirable dust comes from starch that is used in those operations and is not harmful. The Secretary set a higher permissible exposure level—750 ug/m^3—in those operations. 43 Fed. Reg. 27360 (1978). See page 12, *infra*. See also 41 Fed. Reg. 56504 (1976).

[5] "Engineering controls," for purposes of the cotton dust standard, are mainly general and local ventilation systems designed to remove particulate matter from the air by using suction to capture emission source dust, which is then conveyed to a filtration system that screens out the particulates before recirculating the air into the working area. General ventilation systems consist of filtration systems used in conjunction with central air conditioning equipment (43 Fed. Reg. 27363 (1978)). Local exhaust ventilation requires enclosure of machinery and the use of suction hoods that are placed as close as possible to the emission source; the air is then filtered and recirculated (*id.* at 27364). See J.A. 79-82.

U.S.C. 655(b).[6] The new standard sets stricter PELs governing airborne concentrations of cotton dust in various manufacturing processes and requires a program of prophylactic work practices, education, training, and medical surveillance. The standard allows employers four years within which to meet the PELs through engineering controls and requires the use of respirators in the interim. Respirators will thereafter be required where the PEL cannot feasibly be reached through engineering controls. The standard also provides that whenever a physician determines that an employee is unable to wear a respirator, the employee must be given the opportunity to transfer to another position having a dust level at or below the PEL, if one is available, without loss of pay.

Petitioners, among others, sought judicial review of the standard under Section 6(f) of the Act, 29 U.S.C. 655(f). On October 24, 1979, the court of appeals upheld the standard as applied to petitioners (Pet. App. 19-102).

B. Toxic Effects of Cotton Dust

Reliable estimates show that at least 35,000 active and retired American textile workers are chronically disabled as a result of disease caused by the inhalation of cotton dust (J.A. 347; 43 Fed. Reg. 27353 (1978)).[7] In addi-

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[6] Section 6(b) of the Act, 29 U.S.C. 655(b), establishes procedures to be followed in promulgating permanent occupational safety and health standards. Among other things, the Secretary must provide for notice and comment and the opportunity for a hearing. In the present case, comments were received from 263 parties, and 109 witnesses appeared during 14 days of hearings held in three cities. The administrative record exceeds 105,000 pages (Pet. App. 35).

[7] Such chronic disease is manifested in severe and continuous shortness of breath, chronic cough, and severe and permanent loss of lung function. The afflicted employee must often choose premature retirement despite efforts to continue working (43 Fed. Reg. 27352-27353 (1978)). Excess heart strain and death through heart failure may also result from severe breathing incapacity (J.A. 64-73).

tion, dose-response curves drawn by Dr. James Merchant, Director of the Appalachian Laboratory for Safety and Health, and his colleagues, based on studies of various textile mills, show that one quarter of yarn manufacturing workers manifest at least acute symptoms of disease at exposure levels roughly equivalent to those set by the 1971 standard.[8] The dose-response data also show that 13% of those workers will manifest such symptoms even under the 1978 PEL. See note 8, *supra*. These figures underestimate the true extent of the disease, however, because workers with severe acute symptoms will often leave their jobs rather than face further disability, and will not be counted in worker surveys (J.A. 42-49).

Detection of acute byssinosis depends largely upon worker complaints of chest tightness and breathlessness. A standard questionnaire and classification system[9] are generally used. The worker's condition is classified as grade ½ byssinosis if the symptoms occur only occasionally on the first day of the work week. If the symp-

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[8] Dr. Merchant's dose-response curve showed that, in the yarn manufacturing processes, a 3% prevalence of all grades of byssinosis occurred at a dust level of 50 ug/m^3. At levels of 100 ug/m^3, 200 ug/m^3, and 500 ug/m^3, the percentages rose to 7%, 13%, and 26%. In the remaining processes (slashing and weaving), no significant prevalence was found at 200 ug/m^3; percentages of 5% and 15% were found at levels of 500 ug/m^3 and 1000 ug/m^3 (43 Fed. Reg. 27355 (1978); J.A. 44, 46). Dr. Merchant's figures generally accord with those of other investigators. See J.A. 56-57, 61-63; App. 376-385. Comparing his work with that of other researchers, Dr. Merchant stated that "it is remarkable once dust concentrations and different processes are taken into account, even with the different methods used, different countries, [and] slight differences in questionnaire, how similar the prevalence levels are from country to country and process to process. So I think there is a good degree of correlation between the investigations" (J.A. 437). Dr. Arend Bouhuys, Director of the Yale University Lung Research Center, made essentially the same observation (J.A. 404).

[9] The classification system was developed by Dr. Schilling in his study of the Lancashire cotton mills (41 Fed. Reg. 56500-56501 (1976)).

toms frequently occur on the first day of every work week, the condition is classified as grade 1. If the symptoms occur on the first day of every work week and regularly recur on other workdays, the condition is classified as grade 2.[10] Byssinotics classified in grades ½ through 2 are clearly unhealthy. They suffer from breathlessness and chest tightness, and they find that their normal activities must be curtailed at work and at home. One expert, who had studied byssinosis for 20 years, testified that in addition to discomfort at work, "in the evening [the worker] finds it difficult to undergo normal activities, he finds it difficult to walk rapidly home, and tends to do very little" (J.A. 434).

Not only does acute byssinosis cause substantial discomfort and interfere with normal activities, but it also causes permanent health damage. While petitioners repeatedly assert (see, *e.g.*, ATMI Br. 4-5, 49-51) that acute byssinosis is "reversible," that statement is incorrect, or at least imprecise. Symptoms may well subside if a worker is removed from the dusty environment, but the damage that has been done cannot be undone. If workers are again exposed, "[their] ability to combat the [disease] is most probably less than when they were normal to begin with" (J.A. 422-423) and repeated exposure results in a "cumulative damaging effect" (J.A. 25). Thus, even grade ½ byssinosis is a "pathological state" that carries "significant health effects." 43 Fed. Reg. 27354 (1978).[11]

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[10] The condition is classified as grade 3 if grade 2 symptoms are accompanied by evidence of permanent incapacity, diminished pulmonary effort tolerance or reduced ventilatory capacity.

[11] As Dr. Bouhuys stated (J.A. 152-153):

> The reversible physiological changes induced by cotton dust exposure need to be prevented and should therefore be considered in establishing a standard. The reversible effects of cotton dust exposure on the lungs of workers constitute a recurrent insult to their lungs which is unacceptable if only for the fact that they are associated with symptoms of cough, chest tightness, shortness of breath, and wheezing. In addi-

Medical science has not yet discovered the precise manner in which lower grade, acute byssinosis progresses to the level of chronic, irreversible, and disabling disease (grade 3 byssinosis).[12] Indeed, the idea of an orderly progression may not accurately describe the route of the disease, as Dr. Russell Harley, an ATMI expert, testified at the hearing (J.A. 192):

> [T]he assumption is often made that the disorder progresses from ½ to 1 to 2 to 3 and, thus, all grades reflect the progress of the individual's disability. In many instances, however, there is no progression at all. Sometimes Grade 3 seems to appear *de novo* or there is a jump from 1 to 3. Among those who develop permanent disability, Grade 2 very often never occurs.

It is beyond dispute, however, that both acute and chronic stages are attributable to inhalation of cotton dust (43 Fed. Reg. 27352 (1978)) and that repeated acute insults lead to chronic impairment (43 Fed. Reg. 27354 (1978); J.A. 153-154, 411). This progression occurs because "[u]ltimately repeated bronchial construc-

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> tion, it is likely although not definitely established that recurrent acute effects of dust exposure contribute to the insidious development of chronic lung disease. * * * [S]ince the acute effects of cotton and hemp dusts on lung function are similar, prudence indicates the assumption that temporary hypoxemia may also result from acute dust exposures to cotton dust. There can be little question that any exposure which may result in temporary disturbances of the supply of oxygen to the tissues of the human body needs to be prevented.

[12] The Secretary pointed out in the final standard that the chronic disease caused by cotton dust is not adequately described by the term "grade 3 byssinosis" (43 Fed. Reg. 27353 (1978)). For instance, some workers demonstrate excessive rates of chronic bronchitis that must be deemed attributable to their dusty environment (*ibid.*). Accordingly, the "suggestion that the term chronic obstructive pulmonary disease (COPD) [should] constitute [the] generally accepted clinical definition of chronic lung disease * * * has merit" (*ibid.*).

tion leads to fixed airway obstruction" (J.A. 411). The prevention of chronic respiratory disease thus necessarily entails the prevention of acute disease (J.A. 411; 43 Fed. Reg. 27354 (1978)).[13]

C. The basis for the final standard

On December 28, 1976, the Secretary proposed a new occupational health standard for cotton dust. The Secretary proposed, on the basis of then available health data and considerations of technological and economic feasibility, that the PEL should be set at 200 ug/m^3 for all textile operations. The PEL was to be attained ultimately through engineering controls, but respirators would be required in the interim. Because Dr. Merchant's data showed that 13% of the relevant population would remain unprotected even at this level, however, the proposed rule also mandated a medical surveillance program, specific work practices to minimize exposure, and

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[13] The diagnostic techniques currently available for identifying acute respiratory disease caused by cotton dust are not wholly satisfactory because they depend to a large extent on the accuracy of employee responses to the standard questionnaire (see pages 5-6, *supra*), and it is not uncommon for workers to conceal their symptoms. It is therefore "possible that one could miss true grade 2 byssinotics with a medical program that is competent, is professional, well run * * *" (J.A. 439). See also 43 Fed. Reg. 27359 (1978). Acute disease, including grade ½, may sometimes be detected through objective measurements of lung function loss (pulmonary function decrement). A spirometer can be used to measure lung function loss at the beginning and end of the work day, with a decline in the volume of air expired signifying an adverse reaction to dust in the working environment. The measure most commonly used is the Forced Expiratory Volume in the first second of a deep breath expiration (FEV 1). See 43 Fed. Reg. 27352-27354 (1978). However, some true byssinotics complain of chest tightness and breathlessness but show no measurable deficit in pulmonary function, while others show pulmonary function deficit without experiencing breathlessness or chest tightness (J.A. 23, 24, 193, 435; Pet. App. 119-120). There is thus no assurance that some employees are not true byssinotics despite negative results on both the questionnaire and the pulmonary function test.

employee education and training (41 Fed. Reg. 56504-56508 (1976)).

During the extensive informal rulemaking proceedings that followed, the textile industry conceded that a dust exposure limit was needed, but contended that equally effective protection could be provided at a dust level less stringent than the proposed standard, through reliance on respirators and medical transfers.[14] The industry also attacked the technological feasibility of the proposed PEL as applied to textile processing operations from spinning through weaving,[15] and it claimed that the standard as a whole was not economically feasible or achievable within the proposed seven-year implementation period. On the other hand, employee representatives attacked the standard as too lenient and advocated a 100 ug/m^3 PEL in all operations.

1. *The Secretary's Health Determinations and Dust Control Strategy*

The Secretary found overwhelming support in the rulemaking record for the proposition that textile workers face a severe hazard of byssinosis in most operations both at the proposed level of 200 ug/m^3 and below. Even at 200 ug/m^3, workers in all operations except slashing

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[14] The industry advocated that the PEL be set at 500 ug/m^3 for all textile operations except slashing and weaving; for those operations, the industry recommended an exposure level of 1000 ug/m^3 (43 Fed. Reg. 27355-27360 (1978)). The industry claimed that its data showed a very low prevalence of disease at 500 ug/m^3 in yarn manufacturing, thus contradicting Dr. Merchant's results. The industry contended, therefore, that only a small number of medical transfers would be necessary in connection with the industry's proposed limit and that that number of transfers was within the capability of the industry (*ibid.*).

[15] The industry conceded that the Secretary's proposed limit was technologically feasible in the initial processes of opening through roving.

and weaving face a 13% risk of byssinosis. At the industry's proposed 500 ug/m^3 level, that risk is doubled.[16]

Based on the testimony of many medical witnesses (*e.g.*, J.A. 401-405, 411), the Secretary concluded that the standard could not be effective unless it was aimed at curbing all grades of byssinosis. "[B]yssinosis represents a continuum of disease," and "the diminished state of health of grade ½ byssinotics is a stage of the pro-

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[16] Dr. Merchant's dose-response curve showed the existence of risk at exposure levels approaching zero in yarn manufacturing operations, and the record affirmatively demonstrated that no safe level of exposure existed (43 Fed. Reg. 27358 (1978)). The industry relied upon certain other studies in attempting to show that the prevalence of byssinosis was not as high as Dr. Merchant suggested. The Secretary found the industry data deficient, however, because the reported prevalence of disease was not accompanied by adequate dust level data in many instances. For example, the Cone Mills survey (Pet. App. 126-136) provided no dust level data, and the Burlington and West Point Pepperell surveys gave only "assigned" ranges (Pet. App. 161-163, 187). A dose-response curve similar to Dr. Merchant's could not be constructed on the basis of such data. Moreover, the actual exposure levels in the mills studied by the industry were generally much lower than the 500 ug/m^3 level that the industry advocated and often the worker populations in such mills had been part of an on-going worker surveillance program. That was the difficulty with respect to the mills studied by Morgan and Weill. 43 Fed. Reg. 27356, 27358 (1978). The Secretary noted that "[t]he Weill study in particular demonstrates the difficulties inherent in analyzing epidemiological data collected using a mixture of either very clean or very dusty mills." *Id.* at 27358. Furthermore, the industry's low prevalence claim was based on data collected through a questionnaire, and the validity of the data could depend on the manner in which the questionnaire was administered. Indeed, other investigators had noted a rough equivalency between rates of prevalence identified by questionnaire and by pulmonary function testing (43 Fed. Reg. 27357 (1978)), whereas the industry here found a much higher rate through pulmonary function testing, thereby casting further doubt on the industry data (8%-11.8% vs. 1%-3%). Because of the marked disparities between the industry's data and those collected by independent public health investigators, together with the deficiencies in the industry's methodology, the Secretary regarded the industry's data as having questionable validity (43 Fed. Reg. 27359 (1978)).

gressive development with prolonged exposure to cotton dust to an ultimately irreversible respiratory disease" (43 Fed. Reg. 27354 (1978)). Because acute symptoms are often disregarded by workers and may therefore go undetected, the Secretary stated, it is necessary to protect such workers before the condition becomes irreversible (43 Fed. Reg. 27354 (1978)).

The Secretary concluded that the best way to reduce the prevalence and risk of disease is to reduce dust levels to the extent feasible through engineering controls. The Secretary's conclusion was supported by substantial medical and scientific evidence suggesting that reduction of dust levels should be the main objective of the standard (Pet. App. 51-52 & n. 87).[17]

The Secretary rejected the industry's plan for less stringent dust control combined with reliance on transfers and respirators. First, the Secretary doubted the industry's assumption of low disease prevalence at the 500 ug/m^3 level (see note 16, *supra*). Second, Dr. Merchant's study suggested that a quarter of the relevant population would be diseased at that level, while the textile industry claimed that it could transfer no more than 10% of its workforce (J.A. 445-446). It was evident, therefore, that transfers could not play a sufficiently major role in employee protection.[18] Third, respirators were not acceptable because of their documented unreliability, their in-

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[17] The National Institute for Occupational Safety and Health (NIOSH) had recommended, based on a thorough review of the medical literature, that the new standard impose the lowest feasible limit on dust concentrations, but in any event no higher than 200 ug/m^3 (J.A. 175). In addition to NIOSH's recommendation, Dr. Merchant testified that he favored a reduction to 100 ug/m^3 (J.A. 52). Dr. Hans Weill recommended that the level be set between 200 ug/m^3 and 500 ug/m^3 (J.A. 156).

[18] Under the industry plan, 60% of the diseased population could not be transferred. Indeed, the Secretary concluded that it was only at the 200 ug/m^3 level that the number of necessary transfers would be within the capability of the industry (43 Fed. Reg. 27359 (1978)).

ability to protect employees with impaired breathing, and their associated safety hazards (43 Fed. Reg. 27384 (1978)).

The Secretary also considered and rejected more stringent exposure limits. In the yarn manufacturing processes, the Secretary concluded that the employee representatives' proposal of 100 ug/m^3 was not within the "technological capabilities of the industry." 43 Fed. Reg. 27360 (1978). With respect to weaving operations, the Secretary noted that "engineering dust controls in weaving may not be feasible even with massive expenditures by the industry." *Ibid.* See also J.A. 247-248 (necessary changes would have required reconstruction of 90% of the weave rooms). In this regard, one study had estimated that nearly 60% of compliance costs would be concentrated in the weaving sector and that the impact on the industry would thus be severe (J.A. 74, 125-130). Rather than require these apparently infeasible expenditures, the Secretary determined that optimal worker protection would be served by concentrating "resources on achieving 200 ug/m^3 in yarn manufacturing as rapidly as feasible * * *." 43 Fed. Reg. 27360 (1978). Accordingly, the Secretary set the roughly equivalent levels of 200 ug/m^3 in yarn manufacturing and 750 ug/m^3 in slashing and weaving (see page 3, note 4, *supra*).

2. *The Feasibility of the Standard*

The Secretary also carefully assessed the technological feasibility and the economic consequences of the final standard. Before publishing his proposal, the Secretary had contracted with Research Triangle Institute (RTI) to conduct a technological assessment and economic impact analysis. During the rulemaking, interested parties supplied much additional technical and economic information. The Secretary concluded on the basis of these data that the final PEL's—750 ug/m^3 in weaving and 200 ug/m^3 in the remaining operations—were both technologically achievable and well within the financial capabilities of the industry.

a. *Technological Feasibility*

The industry conceded that it could achieve the 200 ug/m^3 level in the initial processes, opening through roving,[19] through conventional dust control techniques, including local exhaust ventilation. The industry maintained that it was technologically impossible, however, to achieve that level in the later operations, spinning through weaving,[20] and it therefore challenged the RTI study's premise that local exhaust ventilation was suitable for those operations. In setting the final standard, the Secretary generally agreed that local exhaust ventilation has greater limitations in operations beyond roving, but he did not believe that the lower levels could not be achieved (43 Fed. Reg. 27362-27363 (1978)). Indeed, record evidence showed that dust levels in operations beyond roving were already quite low, although the industry had not devoted much effort to dust control in these operations.[21]

In addition, other effective techniques were also available to reduce dust levels. Processes are not generally isolated in the mills, but something as simple as closing the door between the weave room and other processing areas could reduce levels by preventing the migration of dust (J.A. 83-84; see also J.A. 13). Enhanced filtration of air circulated by the general ventilation system would

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[19] In these operations, the raw cotton is cleaned and formed into strands suitable for spinning.

[20] In "spinning," the processed cotton is spun into yarn. In "winding," "spooling," "twisting," and "warping," the spun yarn is packaged for weaving or other processing. In "slashing" and "weaving," the yarn is treated with sizing and woven into fabric.

[21] In spinning, for example, raw data supplied by ATMI showed that the dust levels of 30 out of 46 (65%) spinning operations were already below 200 ug/m^3. That sample included operations spinning 100% cotton, which is conceded to be the dustiest variety (App. 3490-3560). In weaving operations, the ATMI data showed that 87% of the operations were within the 750 ug/m^3 limit (*ibid.*), while data collected by Hovan Hocutt, a ventilation expert, showed that 72% of the weave rooms already complied with the final standard (J.A. 247-248, 465).

likewise prevent recirculation of contaminated air (J.A. 11, 168-169, 414). Moreover, some witnesses recognized that dust levels in later operations would be lowered if the earlier processes were subject to the most efficacious cleaning (J.A. 10-11, 287, 469). Because the industry's projections of achievable dust levels were based solely on the difficulty of using local exhaust ventilation techniques, the Secretary concluded that the established exposure levels were, as a general matter, within the technological reach of the industry. 43 Fed. Reg. 27366-27367 (1978).[22]

b. *Economic Feasibility*

In the rulemaking proceedings, the assessment of the economic impact of the 200 ug/m^3 level upon the industry was dominated by consideration of the cost of the engineering controls necessary to achieve that level. At the outset, the Secretary had contracted with RTI to study the economic impact of alternative standards. That process continued with the issuance of the proposed standard and the agency's solicitation of views as to how the expected costs might be financed. 41 Fed. Reg. 56498 (1976). The rulemaking proceedings produced voluminous information. See page 4, note 6, *supra*. The quantitative and qualitative information adduced in the rulemaking permitted the Secretary not only to compare the dollar estimates provided by the various parties, but also to examine critically both the methodology and the technological and economic assumptions upon which those estimates were based. In this way, the Secretary was able to make an independent feasibility determination. In simplest terms, the Secretary concluded that RTI had based its dollar estimate on the need for greater technology than was necessary and that the industry had underestimated the efficacy of the technology it had costed.

The RTI study estimated that $2.4 billion would be required to meet a uniform level of 200 ug/m^3 in all

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[22] The issue of technological feasibility is not presented in this case (see ATMI Br. 8 n.16).

textile operations; that estimate included $1.3 billion in costs attributable to meeting the 200 ug/m^3 level in weaving operations, which was not required by the final standard (J.A. 74). The industry produced the Hocutt-Thomas cost estimates, which were based on an ATMI survey and methodology that the industry declined to disclose fully (J.A. 388-397, 465-468). The industry's submission estimated that costs of $543 million would be required to achieve 200 ug/m^3 in opening through roving, 500 ug/m^3 in spinning through warping, and 1000 ug/m^3 in weaving (J.A. 234-251; Pet. App. 155-156). The industry submitted no cost estimates for lower levels in operations beyond roving, because it claimed that further reductions were impossible.

Other parties, including the Council on Wage and Price Stability (J.A. 333-335), presented data and information showing that existing trends toward modernization and technology changes should be considered in assessing the economic feasibility of a standard (J.A. 266-286). Although the RTI and industry estimates were both premised, for instance, on a compliance strategy that relied exclusively on "retrofitting" or adaptation of old equipment, the record showed that on-going modernization would necessarily result in significant cost savings.[23]

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[23] For example, Dr. Parker Reist of the University of North Carolina testified that new, high-speed carding machinery was cleaner, more productive, and less costly per unit of production. In addition, the elimination of picking operations through use of high speed chute feed cards constituted a significantly less costly alternative to retrofitting. Dr. Reist explained that high-speed cards attaining speeds of 80-120 pounds of cotton per hour had recently become available (J.A. 298-300). For purposes of dust control, however, air flow requirements per card remained roughly the same (*id.* at 300-301). Moreover, high speed cards can be used to provide substantially increased capacity for the same cost of air flow. Alternatively, the number of cards can be reduced, thereby maintaining the same total hourly capacity at lower air costs (J.A. 293-294, 300-301, 477-480). One mill found that the expense of retrofitting 139 low-speed cards would cover the purchase of 32

RTI's estimate was overstated in three other significant respects. First, RTI derived a unit cost per machine for applying local exhaust ventilation to achieve the 200 ug/m^3 level (J.A. 88-95). The Secretary had concluded, however, that this costly technique would not be necessary for some operations. In spinning through warping, for instance, the Secretary found that many mills had already met the 200 ug/m^3 level, and that necessary reductions would occur because of lower dust levels in prior operations (without additional cost) and through isolation of processes and enhancement of the broken ends collection system on spinning frames.[24] See pages 13-14, *supra*. Thus, RTI's estimate that $493 million would be required to achieve the 200 ug/m^3 level in spinning operations was wholly unrealistic. 43 Fed. Reg. 27366-27367 (1978). Second, RTI's estimate assumed that all existing machinery should be taken into account,

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high-speed cards with increased capacity and lower operating costs (J.A. 304-306).

Greater dust control will also result when a mill chooses, for production reasons, to replace traditional ring-spinning frames with open-end spinning frames. A traditional ring-spinning frame is difficult to control, whereas an open-end frame has built-in controls and requires only the filtration system (J.A. 470-471). An open-end frame also has the dust-control advantage of eliminating both the preceding roving operation and the subsequent winding operations. One mill found that a decreased unit cost of production resulted from this conversion (J.A. 476-477). Although open-end spinning is not suitable for all operations, it was expected that this new technology will grow from 5% to 30% of the spindles in the industry (J.A. 459).

[24] The Hocutt-Thomas analysis estimated that enhancement of the broken-ends collection system would cost $17.7 million (J.A. 251, 486; Pet. App. 155-156). The Secretary recognized that local exhaust ventilation was not as applicable in weaving operations as in other operations, but RTI's $1.2 billion estimate for achieving 200 ug/m^3 in weaving depended on that technique (43 Fed. Reg. 27367 (1978); J.A. 91-95). Similarly, the Secretary found local exhaust ventilation largely unnecessary in spinning, winding, spooling, twisting and warping, but RTI's estimate included $620 million for such controls (43 Fed. Reg. 27366-27367 (1978)).

regardless of whether the machinery was being used to process pure cotton, pure synthetics, or a blend. Machines that are isolated and process pure synthetics would not need to be controlled, however, because the ambient dust would not contain cotton. Moreover, blends produce substantially less dust because "synthetic fibers are virtually trashfree and contribute little" (J.A. 9) to the ambient air concentration (J.A. 9, 30, 50, 90-91, 133, 136-137). RTI admitted that this incorrect assumption could have increased its overall compliance cost estimate by 30% (J.A. 90-91, 133, 136-137). Third, RTI assumed that the entire industry stood on the same footing, that no prior dust control expenditures had been made, and that dust levels were at uniform levels throughout the industry (J.A. 85-90).[25] However, the evidence adduced at the hearings disclosed a range of dust levels within the industry, as well as significant pre-existing compliance with the levels prescribed in the final standard.

In addition to the RTI estimate, the Secretary had one other comprehensive cost estimate: the Hocutt-Thomas calculations that were based on the ATMI data. Based on his comparison of the two estimates, the Secretary concluded that "[s]ince ATMI estimates are based on the most recent data, OSHA believes them to be more realistic than those offered by * * * RTI" (43 Fed. Reg. 27373 (1978)). While RTI had been unable to assess the extent of current dust controls, Hocutt had the benefit of such information reported in ATMI's survey (J.A. 236-238). The Hocutt-Thomas estimates also provided a reasonable reference in cases where the record showed that RTI's

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[25] While RTI had access to some data on actual dust levels and industry efforts to implement dust control, RTI was not able to survey the industry to determine the extent to which its projected costs would actually have to be incurred (J.A. 418-420). This limitation also resulted in overstatements with respect to estimates for nonengineering costs because the record showed, for example, that medical surveillance programs had been established in some mills, thereby obviating the need for incurring initial costs in that area.

control cost estimates were overstated. In weaving, for example, the Secretary noted that raising the PEL to 750 ug/m^3 meant that "the need for certain engineering controls and/or amounts of air and filtration would be changed [and] costs [would] be reduced significantly" (43 Fed. Reg. 27371 (1978)). Because the Secretary believed that better dust control would result from the expense identified by Hocutt-Thomas, he "adopted the Hocutt-Thomas estimate for slashing and weaving which predicted a level of 1000 ug/m^3 instead of the RTI estimate for slashing and weaving at 200 ug/m^3" (*ibid.*).

Although the Hocutt-Thomas cost estimate was premised in part upon PELs that were higher than those mandated by the final standard, the Secretary concluded that this estimate also was overstated in several important respects. The Hocutt-Thomas estimate, like that of RTI, was based on retrofitting costs, and it thus overstated actual costs to the extent that modernization and technological innovation would otherwise occur (43 Fed. Reg. 27372 (1978). Similarly, the Hocutt-Thomas estimate did not account for the already low levels in many operations or the fact that more stringent controls in earlier operations would, without additional cost, result in less dust in later operations (see pages 13-14, *supra*).[26] Finally, the Hocutt-Thomas calculations may

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[26] Thus, Hocutt estimated that $41 million would be required to meet a 500 ug/m^3 level in winding, spooling, twisting and warping, whereas the Secretary believed that, given the already low levels in these operations, further reductions could be effected through maximum cleaning in prior operations, isolation of processes, and enhancement of general ventilation. 43 Fed. Reg. 27362-27364, 27366-27367 (1978). Hocutt also noted that dust capture systems on winders could handle 20,000 cubic feet of air per minute, although he costed only the price of half that volume to achieve 500 ug/m^3. He also pointed out several spooler modifications that would improve performance beyond the 500 ug/m^3 that he had calculated. For twisters, Hocutt provided no estimate because he had concluded that these machines could not be controlled with local exhaust ventilation. The cost with respect to warpers likewise was not estimated because Hocutt stated that dust levels

also have included costs for machines processing synthetic material. These overstatements tended to offset any differences in cost attributable to the fact that the Hocutt-Thomas estimates were premised in part upon higher dust levels. The Secretary was unable to adjust the Hocutt-Thomas estimates further, however, for several reasons, including the fact that the industry refused to disclose much of its supporting data and methodology (43 Fed. Reg. 27373 (1978)). Nonetheless, based on the record, the Secretary believed that his adjusted estimate, amounting to $550 million in capital costs, was sufficiently reliable to assess the economic impact of the standard (*ibid.*).

The Secretary concluded that the industry as a whole could well afford costs in the $550 million range, to be incurred over a four-year period. This conclusion was based largely on RTI's extensive analysis of the impact of various cost levels on the industry's structure, its rates of return, and its profits, in light of its competitive position with respect to synthetics and imports (J.A. 95-150).[27] RTI also reported that the industry's capacity was currently under-utilized and that the capital required for compliance costs thus would not displace other capital needs (43 Fed. Reg. 27377 (1978)).

RTI examined capital costs per dollar of sales and found these costs to be small in the yarn manufacturing sector for both RTI's $211.8 million (500 ug/m^3) and $984.4 million (200 ug/m^3) capital requirements estimates. The increase in costs amounted, respectively, to only 1.7 and 7.8 cents per dollar of sales (J.A. 96). Because the capital costs of the final standard for this

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would be 500 ug/m^3, but he did note that these machines were amenable to some controls (J.A. 245-250).

[27] While the Secretary disagreed with RTI's cost estimates because of certain incorrect assumptions about the current state of dust control in the industry, as well as strategies necessary to achieve further dust control, RTI's analysis of the industry's ability to handle various levels of costs was based on unrelated data that were not subject to the same criticism.

sector were estimated at $467 million, it was clear that increased costs per dollar of sales would be small. RTI also calculated the price increases that would be required, given various compliance costs, to maintain the previous rate of return on investment. For the $211 million in capital costs that RTI estimated for a 500 ug/m^3 dust level, necessary price increases ranged from less than 0.1 cent per dollar of sales to 1.6 cents per dollar of sales. Given the $984 million costs RTI anticipated for a 200 ug/m^3 dust level, the necessary price increases ranged from 0.5 cents to 6.3 cents per dollar of sales (J.A. 97-102).[28]

In addition, RTI examined the competitive posture of cotton and the textile industry. RTI judged competition from synthetics not to be significant. Synthetics had penetrated the market to its limits, and there remained an irreducible demand for cotton products. Moreover, the price differential was unlikely to remain so heavily in favor of synthetics in view of the escalating costs of petroleum (43 Fed. Reg. 27350, 27370 (1978)).[28a]

RTI also noted that import restrictions were in force under a number of textile trade agreements and that the annual allowable rate of growth of imports was set in the most recent agreement at the 6%-7% range. Moreover, international monetary changes since 1971 had resulted in sharply increased levels of American textile exports

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[28] In weaving, the final standard was calculated to increase costs by only slightly more than 0.13 cents per dollar of sales (J.A. 124).

[28a] RTI noted that synthetics had gradually achieved a 70% share of domestic fiber consumption, but that factors other than the price differential between cotton and synthetic fiber would govern any further shifts. It is difficult and costly for a mill to change the ratio of cotton to synthetics in its processing machinery. Moreover, fluctuations in consumer demand for major cotton products—men's wear and home furnishings (sheets and towels)—is relatively independent of price (J.A. 140-146). Arthur Figh, a leading textile financial expert and vice-president of the Chase-Manhattan Bank, agreed that synthetics were unlikely to displace cotton any further (J.A. 474-475).

(J.A. 146-150). RTI concluded that small changes in the relative prices of domestic and foreign textile products would have "very little impact" on the domestic textile industry, "and, in general, the trade agreements dampen the effects on domestic markets of small changes in relative prices" (J.A. 150).

In charting the maximum potential inflationary impact, as well as the long-run economic consequences on employment levels and cotton products demand, RTI assumed the occurrence of the necessary price increases that it had calculated. RTI found that these long-term effects would be minimal even for costs as high as $984 million.[29] Thus, as ATMI contends (ATMI Br. 27), RTI did perform analyses that assumed a full pass-through of costs, but, significantly, RTI concluded that the long-term detrimental effects of such price increases were not significant. In view of this conclusion and of RTI's determination that interfiber and international competition were not constricting factors, RTI's judgment that prices would rise over time to generate revenues that would cover costs (J.A. 172-173) was fully warranted.

By comparing ratios of costs to annual profits, RTI also analyzed the short term effect of compliance costs with respect to financing. These ratios indicated both the internal availability of funds and the industry's ability to

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[29] Using a price elasticity analysis, RTI calculated that price increases due to $984.4 million in compliance costs would decrease demand by only 3%-4% and that compliance costs of $211 million would lead to a demand decrease less than 1% (J.A. 113-124). Thus, only a small decrease in demand would result from $467 million in compliance costs, and the impact on cotton growers would be minimal. National Cotton Council's contrary assertion (Br. 20-22) is based on the grossly inaccurate assumption that compliance costs would exceed $2 billion. Moreover, National Cotton Council's contention (Br. 16) that RTI erroneously used short-term elasticities is insubstantial. RTI explained that long-term elasticities were unavailable (J.A. 114-115). In addition, RTI's judgment that competition from synthetics and imports was not significant meant that the long-term effects of price increases would not differ substantially from those calculated from short-term elasticities.

borrow from external sources. Although RTI assumed for these calculations that prices would rise to maintain pre-standard profits, this assumption was supported by studies showing relatively small short-run demand price elasticities, indicating a capacity for passing on cost increases through price increases (J.A. 113-120).[30] These ratios were substantial for the nearly $2.4 billion in capital costs that RTI had estimated for a 200 ug/m^3 level, especially in the weaving sector, but they were significantly smaller for the $221 million estimated for a 500 ug/m^3 level. The cost effects were an element in the Secretary's feasibility determination that led to the decision to set a higher limit in weaving operations (J.A. 125-130). As the Secretary explained, the estimated costs of the final standard—$550 million—fell between those figures, and the unfavorable ratios identified by RTI accordingly would decline dramatically (43 Fed. Reg. 27378 (1978)).

On the basis of these calculations, the Secretary concluded that the $550 million compliance costs required by the final standard were within the industry's financial ability, given a four-year period for implementation of engineering controls, and would have an adverse impact on only a few marginal firms (43 Fed. Reg. 27378 (1978)). The Secretary also concluded that the standard meets the statutory criteria set forth in Section 6(b)(5) of the Act, 29 U.S.C. 655(b)(5), because the standard's requirements are necessary to provide the required protection and are economically and technologically feasible (43 Fed. Reg. 27378-27379 (1978)). The Secretary rejected the contention that he was required to perform a cost-benefit analysis after he had determined that the

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[30] RTI also determined that, given the extreme assumption that no price increases could occur, all sectors of the yarn manufacturing industry would remain profitable, on the average, for the low costs of the 500 ug/m^3 level, and only one sector would experience negative return for the large costs of the 200 ug/m^3 level (J.A. 97-99).

new standard would yield appreciable benefits [31] and that it was feasible. The Secretary noted that Congress had performed a categorical "cost-benefit" analysis in this area, striking the balance to provide for the maximum feasible protection against significant risks of material health impairment. Because the Secretary concluded that the standard fulfilled Congress' mandate, he had no authority to weigh necessarily speculative costs and benefits to promulgate a different standard (43 Fed. Reg. 27378 (1978)).

3. *The Medical Transfer and Income Protection Provision*

Respirators will be widely used for a substantial interim period under the final standard. Consequently, the Secretary addressed the difficulties involved in the use of respirators and established protections for employees who are unable to use them (43 Fed. Reg. 27386-27387 (1978); J.A. 164-166, 217-218, 312-315, 316-319, 320-321).[32] Whether an employee can wear a respirator is a determination that must be made by a physician, but experience with past medical screening programs has shown that many workers deny or minimize work-related health problems because they fear being discharged or transferred to lower paying jobs (J.A. 210-212, 218-220, 323-324, 435-436). Thus, the Secretary recognized that accurate information could be obtained and health adequately protected only if employees understood that they would not be adversely affected because of their candor (43 Fed. Reg. 27387 (1978)). Moreover, the Secretary

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[31] A qualified calculation based on Dr. Merchant's dose-response data showed that the new standard would prevent nearly 5,000 new cases of byssinosis each year (43 Fed. Reg. 27379 (1978)).

[32] While it was generally agreed (J.A. 314-315, 323-324, 383-384) that such persons should be transferred, the industry contended that transfers should be limited to workers who manifest grade 3 symptoms, that transfers should be voluntary, and that the workers' pre-transfer pay and benefits should not be guaranteed (J.A. 383-384, 446-447).

recognized that income protection is necessary to fulfill Congress' intent to place safety costs upon employers, rather than employees (*ibid.*) Finally, the Secretary determined that transfers only of grade 3 byssinotics—that is, those workers who had already contracted chronic disease—would not satisfy the prophylactic purposes of the Act. Accordingly, the Secretary provided in the standard that when a physician determines that an employee cannot wear a respirator, the employee must be allowed to transfer to another position having a dust level at or below the PEL, if one is available, with no reduction in wages or employment rights. 29 C.F.R. 1910.1043(f)(2)(v) (Pet. App. 8-9).

D. The Decision of the Court of Appeals

On petition for review under 29 U.S.C. 655(f), the court of appeals upheld the cotton dust standard as applied to petitioners. The court observed that the appropriate standard of review is whether substantial evidence in the record as a whole supports the Secretary's determinations and that its role is "to ensure that the agency has (1) acted within the scope of its authority; (2) followed the procedures required by statute and by its own regulations; (3) explicated the bases for its decision; [and] (4) adduced substantial evidence in the record to support its determinations" (Pet. App. 43; footnotes omitted).

The court of appeals extensively reviewed the record in light of petitioners' contentions. The court concluded that the Secretary had justifiably relied upon the Merchant dose-response data and that the Secretary's determination that the standard should seek to eliminate acute byssinosis, as a means of eliminating the chronic disease, was based on the law and the evidence (Pet. App. 46-53).

Although the industry claimed that the Secretary had ignored its proposed alternative, the court of appeals found that the Secretary had carefully considered that plan and had correctly concluded, on the basis of sub-

stantial evidence, that the industry's studies were deficient (Pet. App. 47-49). The court noted in addition that the Secretary, in disfavoring respirators, had acted on the basis of uncontradicted evidence of health risk and pursuant to the express statutory policy of placing the burden of compliance on employers (*id.* at 49-50). Likewise, the Secretary had properly rejected the unsupported assumption that sufficient jobs existed to permit large scale reliance on a transfer program (*id.* at 49). The court also found extensive evidence showing the necessity for principal reliance upon a stringent dust control strategy (*id.* at 51-52).

The court of appeals found ample proof of technological feasibility, based on technical data and dust readings submitted by the industry, RTI, and NIOSH, all of which showed that certain firms within the textile industry had already substantially complied with the requirements of the standard (Pet. App. 55-61). With respect to economic feasibility, the court concluded that the Secretary had "marshal[led] sufficient support and analysis for [his] decision to use the industry's capital cost estimate" (*id.* at 65). In the court's view, the evidence supported the conclusion that RTI's cost estimates were overstated to the extent that they were based on the retrofitting of old machines, without taking account of new machinery that would be installed in the ordinary course (*id.* at 63). Moreover, the Secretary's assessment that the costs estimated by the industry would result in greater dust reduction than the industry had assumed also justified the conclusion that "even the industry capital estimates were exaggerated * * *" (*id.* at 65). Given the unavailability of more precise data and estimates, due in part to the industry's refusal to cooperate, the court found that the Secretary had reasonably relied on the industry's cost estimate, as adjusted (*id.* at 65-66).

The court of appeals further concluded that the Secretary had properly relied on evidence showing that industry revenues would rise to cover compliance costs

(Pet. App. 67-69). While recognizing that the standard might result in the closing of some marginal firms, the court noted that the feasibility of a standard must be determined by reference to the industry as a whole. Thus, the court found substantial evidence to support the Secretary's determination that the standard would not affect the viability of the textile industry.

The court of appeals also squarely rejected the contention that the Secretary was required to perform a cost-benefit analysis to show either that the standard was feasible or that it was "reasonably necessary or appropriate" (Pet. App. 69-77). The court noted that Congress had already struck the balance between costs and benefits in Section 6(b)(5) of the Act, 29 U.S.C. 655(b)(5), and that, in contrast to other statutes, neither the language nor the legislative history of the Act contained any suggestion of a cost-benefit test. Congress had clearly rejected attacks premised on the ground that the Act was too expensive and had directed "that any *severe* risk to employee health must be eliminated or reduced if feasible means to do so exist" (Pet. App. 74) (emphasis supplied). Thus, the court was not free to impose the additional requirement of a cost-benefit test.

Finally, the court of appeals upheld the Secretary's authority to assure the successful implementation of the respirator and medical surveillance program by requiring income protection for transferred employees. The court found that this provision was "reasonably necessary or appropriate to provide safe and healthful employment" because, absent the provision, employees who are unable to wear respirators "would be forced to suffer continuing exposure to impermissibly high dust levels or else risk disadvantageous transfers, or even risk losing their jobs" (Pet. App. 97). This cost, like other costs of health protection, was appropriately assigned to the employer (*id.* at 97-98).[33]

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[33] The court of appeals remanded the standard, as applied to the cottonseed processing industry, for a reassessment of its economic impact on those employers (Pet. App. 86-93). Although the court

SUMMARY OF ARGUMENT

The Secretary set the present cotton dust standard, which was upheld in relevant part by the court of appeals, based on his determination that the prior standard presented a significant risk of material health impairment that the new standard would substantially reduce. The cotton dust standard therefore meets the threshold requirement identified in *Industrial Union Department* v. *American Petroleum Institute* (*"Benzene"*), No. 78-911 (July 2, 1980). In accordance with the statutory mandate that "the standard [be set] which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if [he] has regular exposure to the hazard dealt with by such standard for the period of his working life" (Section 6(b)(5) of the Act, 29 U.S.C. 655(b)(5)), the Secretary considered voluminous technological and economic evidence and concluded that the requirements of the standard are feasible. The Secretary also considered alternatives submitted by the industry and employee representatives. The industry alternative was rejected because it did not provide the degree of protection required by the statute, and the employee representatives' alternative was rejected because it was not feasible. The Secretary's determinations were based on substantial evidence, as the court of appeals correctly held, and the judgment below should be affirmed.

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upheld the standard as applied to cotton classers and warehouses, the Secretary has since suspended application of the standard to these employers pending administrative reconsideration of the health risk in light of this Court's decision in *Industrial Union Department* v. *American Petroleum Institute*, No. 78-911 (July 2, 1980). See 45 Fed. Reg. 50328-50329 (July 29, 1980). Accordingly, the Secretary acquiesced in a writ of certiorari to vacate the judgment as to these employers and to remand the standard to the agency. See *Cotton Warehouse Ass'n* v. *Marshall*, No. 79-1789 (Oct. 6, 1980).

Petitioners challenge the standard on three grounds, all of which lack merit. First, petitioners contend that the Secretary must not only meet the *Benzene* test and then determine that the standard is economically and technologically capable of achievement, but that he must also conduct a cost-benefit analysis and determine, with respect to each standard, that the anticipated costs bear a "reasonable relationship" to the anticipated benefits. The language and scheme of the Act provide no basis for that contention, and the extensive legislative history of the Act contains not a single suggestion that the Secretary must weigh costs and benefits in setting standards. Moreover, because Congress did not contemplate that the Secretary would weigh costs and benefits, there is nothing in the Act or legislative history to guide the Secretary in ascertaining whether a "reasonable relationship" exists or in determining what value he should place on human life and freedom from suffering. At bottom, petitioners' argument speaks only to public policy considerations. Whatever the merit of that argument, it is one that must be addressed to Congress.

Second, petitioners contend that the Secretary's economic feasibility determination was not based on "substantial evidence." While the Secretary had voluminous evidence concerning that question, petitioners apparently challenge his determination on the ground that he relied on parts of various cost estimates, rather than on the totality of a single submission. The record shows that the Secretary carefully considered the evidence and tested the assumptions underlying the various estimates, and that his conclusions were fully reasoned and fully explained. The Act clearly requires that the Secretary base his decision on "the best available" evidence, and there is no reason to believe that Congress intended for him to abdicate his judgment by accepting or rejecting one or another submission in its entirety. Rather, the Secretary is required to analyze critically the evidence that he receives, as he did here.

Finally, petitioners assert that the Secretary lacks authority to require the transfer to other available jobs, without loss of pay, of workers who cannot wear respirators. The Secretary found that the respirator program would not be effective in protecting against the risk of disease without a transfer and income protection provision, because workers in unhealthful workplaces who are unable to use respirators are unlikely to come forward with that information if they would thereby face unemployment or, at the very least, transfer to a lower-paying job. Moreover, transfers without income protection would place the costs of compliance on workers, contrary to Congress' intention that that burden should rest on employers. The Secretary thus properly concluded that the transfer and income protection provision is a measure "reasonably necessary or appropriate to provide safe or healthful employment." Section 3(8) of the Act, 29 U.S.C. 652(8).

ARGUMENT

I. THE COTTON DUST STANDARD IS REASONABLY NECESSARY AND APPROPRIATE BECAUSE IT PROTECTS AGAINST A SIGNIFICANT RISK OF MATERIAL HEALTH IMPAIRMENT

In *Industrial Union Department* v. *American Petroleum Institute* (*"Benzene"*), No. 78-911 (July 2, 1980), a plurality of the Court held that the Secretary may promulgate a new OSHA standard only when he has met the threshold burden of showing that the existing standard exposes employees to a significant risk of material health impairment that the new regulation will reduce (slip op. 31-32; slip op. 2 (Powell, J., concurring)). As the plurality noted, the Secretary must be afforded substantial discretion in determining whether risks are significant: "[W]hile the Agency must support its finding that a certain level of risk exists by substantial evidence, we recognize that its determination that a particular level of risk is 'significant' will be based largely on policy

considerations" (slip op. 45 n.62).[34] The cotton dust standard clearly meets the threshold requirement identified in *Benzene.*

The previous standard for cotton dust allowed an exposure level of 1000 ug/m^3 of total dust, or approximately 500 ug/m^3 of respirable dust, in most textile operations. See page 3, note 4, *supra.* The dose-response curve based on the studies of Dr. Merchant and his colleagues, which the Secretary determined to be "the most thorough and objective evaluation of byssinosis prevalence in the United States textile industry" (43 Fed. Reg. 27355 (1978)),[35] indicated that workers exposed at that level face a one in four risk of contracting some grade of byssinosis and a one in 15 risk of grade 2 byssinosis (*ibid.;* J.A. 40; 41 Fed. Reg. 56504 (1976)). The risk of grade 3 byssinosis (chronic disease) is far

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[34] The plurality also remarked that "OSHA is not required to support its finding that a significant risk exists with anything approaching scientific certainty" (slip op. 45). Rather, the Secretary must be afforded "some leeway where [his] findings must be made on the frontiers of scientific knowledge" (*ibid.*). See also slip op. 2 (Burger, C. J., concurring); slip op. 3-4 (Powell, J., concurring).

[35] While industry representatives criticized various aspects of the Merchant studies (see pages 9-10, *supra*), the Secretary concluded that Dr. Merchant's findings provide "a reliable assessment of [the] health risk to cotton textile workers from cotton dust" (43 Fed. Reg. 27357 (1978)). The Secretary noted that "the Merchant data has been published and subject to peer review for several years without any major reported challenge to its basic soundness" (*ibid.*). Indeed, only Dr. Moon Suh of Burlington Industries presented any colorable criticism of the Merchant study and, as the Secretary pointed out, Dr. Suh's criticisms were convincingly rebutted at the hearing by Dr. Merchant and others. See 43 Fed. Reg. 27357-27358 (1978). As the Secretary stated, "the dose-response data of Merchant, supported by numerous other studies * * *, is the best available evidence and * * * it provides the Agency with sufficient evidence upon which to take action * * *." 43 Fed. Reg. 27358 (1978). Contrary to ATMI's contention (ATMI Br. 14-15), the Secretary's standard was based not merely on "policy," but on documentation of serious disease.

greater than one in 1000.[36] That risk is manifestly significant. See *Benzene, supra,* slip op. 44-45. Likewise, as demonstrated at some length above (see pages 4-12, *supra*), it is beyond question that byssinosis constitutes a "material impairment of health or functional capacity" in both its acute and chronic forms. Thus, the Secretary reasonably determined that the previous cotton dust standard presented an unacceptable risk of material impairment.[37]

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[36] Dr. Bouhuys estimated that out of a total population of 235,000 retired and 200,000 active textile workers, 35,000 are permanently disabled (J.A. 154-155; 43 Fed. Reg. 27353 (1978)).

[37] In assessing the risks posed by cotton dust, the Secretary properly considered all grades of byssinosis for several reasons. First, the Secretary found, based on the evidence (J.A. 152-153, 421-423, 434-435), that "grade ½ byssinosis and associated pulmonary function decrements are significant health effects in themselves and should be prevented so far as possible" (43 Fed. Reg. 27354 (1978)). Second, the Secretary also found, based on substantial scientific testimony (see pages 6-8, *supra;* J.A. 151-152), that the prevention of chronic disease necessarily requires the prevention of grade ½ byssinosis and other acute responses to cotton dust because byssinosis is a "continuum of disease," and persons manifesting acute symptoms are more susceptible to chronic disease. In many cases, therefore, further exposure "progresses inevitably to the chronic irreversible respiratory diseases associated with cotton dust exposure" (43 Fed. Reg. 27354 (1978)). See note 11, *supra.* The Secretary's determination to set a standard designed to eliminate these acute symptoms therefore constitutes a sound and justifiable policy of prevention. See *Benzene, supra,* slip op. 45. Moreover, as the court below correctly concluded (Pet. App. 52-53), Section 6(b)(5) of the Act, 29 U.S.C. 655(b)(5), not only permits but requires the Secretary to act to prevent chronic disease by protecting workers from the milder forms of byssinosis. That section directs the Secretary to set permanent standards for occuptional exposure to "toxic materials or harmful physical agents" at the level "which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity *even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life*" (emphasis added). For many workers, a lifetime of exposure at current levels will result in chronic debilitating, often fatal disease.

Although the new standard will not wholly eliminate the risk of byssinosis, the Secretary found that it would substantially reduce that risk. According to the Merchant studies, the new PEL would halve—to 13%—the prevalence of all grades of byssinosis for workers in all operations except slashing and weaving. Given the estimated 125,000 to 200,000 persons at work in those portions of the industry (J.A. 154; 43 Fed. Reg. 27353 (1978)), this reduction would represent a substantial increase in health benefits. Moreover, the record evidence also indicated that the new standard would eliminate many cases of chronic disease (41 Fed. Reg. 56505 (1976); 43 Fed. Reg. 27354 (1978)). For example, Dr. Arend Bouhuys, Director of the Yale University Lung Research Center, stated that "it is also probable that implementation of the [200 ug/m^3] standard would greatly decrease the prevalence of disabling chronic lung disease among cotton textile workers in the future" (J.A. 152; see also J.A. 411).

Indeed, petitioners do not contest the validity of the Secretary's judgments that the previous standard presented a significant risk of material health impairment or that various provisions of the new standard will reduce that risk. Apart from their assertion that the Act requires a cost-benefit analysis (see pages 37-63, *infra*), the thrust of petitioners' attack on the new standard rests on their assertion (ATMI Br. 11-12, 39-40) that the Secretary's standard is no more effective than the industry alternative, which combines a 500 ug/m^3 PEL with reliance on medical surveillance, employee transfers, and widespread respirator use. Both the Secretary and the court of appeals correctly rejected petitioners' factual assertion that their alternative would be equally or approximately as effective in curbing byssinosis.[38]

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[38] Petitioners' contention that the industry alternative would be equally effective is based on certain dubious factual assertions. In the main, petitioners rejected the Merchant data upon which the Secretary relied, focusing instead on industry studies that purported to show a much lower prevalence of byssinosis among textile workers. The assessment of those conflicting data obviously required ap-

The Secretary's rejection of the industry alternative was based principally on the recognition that a 26% risk of byssinosis exists at the 500 ug/m^3 dust level advocated by the industry.[39] While the Secretary's standard would

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plication of the agency's expertise, and the Secretary's judgment should not lightly be set aside. As the court of appeals remarked, "OSHA gave serious attention to the medical studies * * * proffered to support the industry's alternative * * * and concluded that their validity had largely been discredited" (Pet. App. 47-48). The court below carefully reviewed the Secretary's extensive discussion of the industry's studies (see 43 Fed. Reg. 27356-27359 (1978)), summarized the Secretary's reasons for rejecting those studies (Pet. App. 48 n.76), and concluded that the Secretary's "judgment on this issue is sufficiently supported on this basis" (*id.* at 48-49).

[39] The validity of Dr. Merchant's risk estimate was challenged at the hearing by Dr. Moon Suh of Burlington Industries (see note 35, *supra*). Dr. Suh's contentions were thoroughly ventilated at the hearing and decided adversely to petitioners (*ibid.*). Petitioners' present reliance (ATMI Br. 9 n.19) on Dr. Suh's assertions is therefore unjustified.

ATMI also seeks to discredit (ATMI Br. 8-9 & nn. 18, 19) the Merchant data on the ground that they measure only prevalence rather than dose-response, and that the prevalence of the disease observed by Dr. Merchant may be related to "presumably higher" dust exposures in the past. Dr. Merchant testified, however, that he carefully designed his study to minimize that problem by choosing mills in which "the process had been stable, where the machinery in place had been stable and had not been changed recently, [and where] the population was relatively stable. So we felt we could minimize the major differences in dust levels in the past" (J.A. 437-438). Although Dr. Merchant and the agency both acknowledged "some weaknesses" in data, such as the small size of some of the populations studied, Dr. Merchant concluded that the data could be used to draw valid dose-response curves with accepted statistical techniques. That conclusion was thoroughly tested at the hearing, and the Secretary concluded that it was supported by the weight of scientific opinion (see pages 5, 10, *supra*). While it is true, as ATMI observes (ATMI Br. 9 n.19), that Dr. Merchant stated that his data could not be used to make a conclusive determination as to the prevalence of byssinosis in the entire textile industry, that is irrelevant. The objective of the study was to develop dose-response data and, for this purpose, Dr. Merchant sought to "get a good distribution of the dust over a large variety of dust

eliminate the risk for 13% of the affected population, the industry alternative would simply attempt to identify, through medical surveillance, those employees who have already exhibited symptoms of acute byssinosis and would permit those employees to transfer before their disease became demonstrably chronic. See generally J.A. 383-384. This industry alternative proposal is unsatisfactory for several reasons.

First, the plan is based on the invalid assumption (see page 8, note 13, *supra*), that a bright line separates chronic and acute forms of the disease. Second, the plan ignores the fact that persons suffering from acute byssinosis are materially impaired (see page 30, note 35, *supra*), and it does nothing to prevent the onset of that condition. Third, the plan assumes, contrary to the opinions expressed by the industry's own experts, that medical surveillance can be a useful *primary* method of disease control at a 500 ug/m^3 exposure level, rather than simply a useful *secondary* control measure.[40] Fourth, the plan's

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measurements" (J.A. 485). These conditions were available at the mills that Dr. Merchant studied and he was thus able to "find striking dose-response relationships" (J.A. 485). In sum, the Secretary acted here on the "best available evidence," as required by the statute. 29 U.S.C. 655(b)(5). See *Benzene, supra*, slip op. 45.

[40] Medical surveillance as a primary means of combating disease was repeatedly disfavored in the rulemaking proceeding, even by Dr. Imbus, the industry's principal medical expert. Dr. Imbus stated that "[m]edical surveillance programs are not a substitute for diligent efforts to control dust" (J.A. 60), and that, "in order for a medical surveillance program to provide any real protection you must first of all have a manageable situation" (*ibid.*). Dr. Imbus recounted one area in an all-cotton plant with a 400 ug/m^3 dust level, where there was significant incidence of symptoms and decrement of FEV; he noted that "[e]ven though dust levels here do not look inordinately high, it is obvious that further action needs to be taken to lower them, and medical surveillance is strictly an interim measure" (*id.* at 59). See J.A. 439-441, 445 (Dr. Imbus; Dr. Merchant). See also *American Smelting & Refining Co.* v. *OSHRC*, 501 F.2d 504, 515 (8th Cir. 1974) ("[B]iological monitoring did not eliminate or even reduce the hazard; it merely disclosed it. * * * Workers should not be subjected to hazardous concentra-

reliance on transfers and respirators is simply unrealistic even on its own terms. The number of transfers the industry can easily accommodate is necessarily low and would be far below the number necessary at the PEL that the industry proposed. Dr. Harold Imbus testified that "in my experience I don't think [the number of workers who could transfer] could be a very high percentage. Certainly somewhere less than 10 percent, at any rate" (J.A. 446).[41] Respirators are also unsatis-

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tions of airborne lead; biological monitoring should complement * * * safe air, but is not a substitute for a healthful working environment.").

The shortcomings of any medical surveillance program are obvious. Workers may be less than totally candid in reporting symptoms of chest tightness and breathlessness (see J.A. 436, 485), and increasing familiarity with questionnaires may alter responses (J.A. 410-412). See also Pet. App. 30 n.13. Pulmonary testing may also fail to disclose symptoms of acute byssinosis (J.A. 192-194, 435). Moreover, the success of a medical surveillance program depends upon the abilities and training of the persons administering the program and "[t]he ability of all manufacturers to implement a high quality medical surveillance program * * * is a problem" (J.A. 436). For example, many workers testified that test results had been withheld from them (J.A. 209-216, 218-220), which would signify a misunderstanding of the gravity of acute byssinosis by persons administering such tests. In addition to the usual problems associated with medical surveillance programs, the industry proposal presented further problems by suggesting that principal reliance should be placed on pulmonary function testing, with questionnaires to be used only when such tests showed a deficit (J.A. 383-384). The industry's "active and effective medical surveillance program" (ATMI Br. 11) would therefore fail to detect many persons suffering from the disease. See note 13, *supra*.

[41] Edward Baier, Deputy Director of NIOSH, and Dr. Merchant expressed similar views. Baier remarked that "only a small proportion of the workers can be effectively reassigned * * *" (J.A. 175) and Dr. Merchant stated that "[i]f you have a significant proportion of your people affected there may not be adequate jobs at low dust levels * * *" (J.A. 440-441). The Secretary took such factors into account. The Secretary acknowledged that, under his standard, 13% of textile employees would still be affected by the disease, but he concluded that it "is not beyond the capacity of a

factory as a primary means of combating this disease, as the record showed (J.A. 165-166, 316-322; App. 2374), because they are both unreliable and, like voluntary transfers, place responsibility for compliance on employees, rather than on employers. As the Secretary noted (43 Fed. Reg. 27384 (1978)):

> Some hearing participants recommended a control strategy involving principal reliance on respiratory protection, to reduce the cost of compliance. However, respirators have many disadvantages which preclude primary reliance or co-reliance on respiratory protection on an equal basis with engineering and work practice controls. The many difficulties with respiratory protection were enumerated at the hearing by respirator expert Bruce Held (Tr. 483) [J.A. 412-413]: because of difficulties in face fit, it is difficult to know whether the respirator actually provides adequate protection; respirators, by interfering with vision, hearing, and mobility, can cause safety problems; some employees cannot wear respirators because of breathing difficulties. Finally, it is not appropriate to place the burden of compliance principally on the employee, as would be the case if respiratory protection were the principal means of reducing employee exposure.

In sum, the Secretary demonstrated that the previous standard exposed employees to a significant risk of material health impairment, which the new standard will substantially reduce. Although the industry contends that it suggested a far less costly alternative, the record shows that the Secretary justifiably found that that alternative was not nearly as effective.

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typical plant to move those [still] affected to a low exposure area." 43 Fed. Reg. 27359 (1978). The industry alternative could not possibly achieve these beneficial results. Thus, the court of appeals correctly concluded that "[t]he industry was unable to show that job transfers would be available in sufficient number to respond to the likely prevalence of byssinosis in plants with dust levels at the 500 ug/m^3 proposed by the industry" (Pet. App. 49).

II. THE SECRETARY'S RESPONSE TO THE SIGNIFICANT HEALTH THREAT POSED BY COTTON DUST IS ECONOMICALLY JUSTIFIED AND REQUIRED BY THE STATUTE

As we have demonstrated above, the Secretary satisfied the *Benzene* threshold requirement in promulgating the cotton dust standard. The question thus presented is one that the plurality expressly reserved in that case: what further criteria must the Secretary use in determining the degree of protection that the statute requires in setting a particular standard. Petitioners contend (ATMI Br. 36-47; NCC Br. 22-23) that the statute requires the Secretary to weigh costs and benefits and to determine that there is a "reasonable relationship" between the two factors. Otherwise, they assert, a standard could drive an industry to the brink of ruin or result in a serious misallocation of limited resources under the Secretary's definition of "economically feasible" (AMTI Br. 31).

Petitioners' submission should be rejected for two reasons. As a factual matter, there is no evidence to indicate that the Secretary's administration of the Act, which has been carried out in a responsible and practical manner, will lead to such results. See pages 55-58, *infra.* More important, neither the language of the statute nor its legislative history contains any suggestion that Congress intended to impose upon the Secretary the duty to conduct a cost-benefit analysis in setting health standards for toxic substances.[42] Rather, the Secretary's statu-

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[42] In some statutes, Congress has expressly determined that administrative agencies should perform a cost-benefit analysis in carrying out the legislative policy. On other occasions, Congress has not imposed such a requirement. See, *e.g., EPA* v. *National Crushed Stone Ass'n*, No. 79-770 (Dec. 2, 1980). The decision whether to require that regulations be cost-justified is clearly within the province of the legislative branch, and it is not the role of the courts to make that policy judgment anew. As the Court remarked in *TVA* v. *Hill*, 347 U.S. 153, 194 (1978): "Our individual appraisal of the wisdom or unwisdom of a particular course consciously selected by the Congress is to be put aside in the process of inter-

tory duty is clear: he must set standards that protect against significant risks of material harm to employee health, to the extent such protection is technologically and economically feasible.

To be sure, in determining the feasibility of a standard, the Secretary is obliged to consider the financial health and viability of an industry. But that is far different from requiring an individualized and heavily subjective balancing of costs and benefits in every case. A decision to engraft such a requirement upon this statutory scheme would not be consistent with either the legislative design or the proper function of the Court in construing this remedial legislation. See *Whirlpool Corp.* v. *Marshall*, 445 U.S. 1, 13 (1980).

In enacting the Occupational Safety and Health Act, Congress was not unaware of the need to give appropriate attention to practical considerations in enforcement of the statutory scheme. Congress therefore chose the term "feasible" to moderate the stringency of standards promulgated under the Act. Congress was likewise aware that costs and benefits would have to be balanced, and it struck the balance itself; it determined that a "reasonable relationship" exists when costs are feasible and their expenditure will reduce a significant risk of material health impairment. If the Secretary were required to make his own determination of a "reasonable relationship" between the cost and benefits of a particular standard, he would necessarily be empowered to strike the balance at a different and often less protective point than

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preting a statute. Once the meaning of an enactment is discerned and its constitutionality determined, the judicial process comes to an end." See also *Benzene, supra*, slip op. 2 (Burger, C.J., concurring); *Harris* v. *McRae*, No. 79-1268 (June 30, 1980), slip op. 26. Whatever the intrinsic value of cost-benefit analysis, and we think petitioners grossly overstate both its practicability and its utility in this context, Congress neither explicitly nor implicitly required the Secretary to employ that technique in prescribing standards governing exposure to toxic substances in the workplace.

Congress intended.[43] Neither the language nor the legislative history of the Act countenances such a scheme.

A. A cost-benefit test is inconsistent with the language and legislative history of Section 6(b)(5)

1. The principal provision of the Act governing health standards for toxic substances, Section 6(b)(5) of the Act, 29 U.S.C. 655(b)(5), is emphatic in its mandate: "The Secretary * * * shall set *the* standard which most adequately assures, to the extent feasible, * * * that *no* employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the [regulated toxic substance] for the period of his working life" (emphasis added). The language of Section 6(b)(5) contains no hint of a cost-benefit requirement. The role that the costs of a standard are intended to play is expressed in the phrase "to the extent feasible," and the ordinary meaning of "feasible" is "capable of being done." See *Webster's Third New International Dictionary* 831 (1976). The word does not refer to the desirability or benefit of doing something; it refers, instead, to the ability to do something.[44] Cost-

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[43] A cost-benefit analysis would not always yield a less protective standard. If an industry's production process were extremely hazardous and its product readily replaceable, it might be that closing most or all of the industry would be cost-beneficial. But Congress clearly did not grant the Secretary the authority to regulate in that fashion. The courts have uniformly construed the feasibility limitation as prohibiting the Secretary from protecting workers by putting most of their employers out of business. *American Iron & Steel Institute* v. *OSHA*, 577 F.2d 825, 835 (3d Cir. 1978), cert. dismissed, No. 78-918 (Sept. 10, 1980); *AFL-CIO* v. *Brennan*, 530 F.2d 109, 123 (3d Cir. 1975); *Industrial Union Department* v. *Hodgson*, 499 F.2d 467, 478 (D.C. Cir. 1974). The scheme that Congress directed the Secretary to follow—reduction of significant risks at feasible costs—is something quite different from that implied by conventional cost-benefit balancing tests.

[44] Congress has consistently employed the word "feasible" in health and safety legislation with this difference in mind, including in one statute enacted the same week as OSHA. Section 211(c)(2)

benefit analysis, on the other hand, involves a specific method for assessing the desirability of proposed actions.

In setting OSHA standards, the Secretary has first determined the level of protection at which employees will no longer face a significant risk of material harm; he has then determined whether that level is technologically and economically capable of achievement. If he finds that the level of protection is not technologically and economically feasible, the provisions of the standard

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(A) and (B) of the Clean Air Act authorizes EPA to regulate, control or prohibit automobile fuel additives. Control or prohibition of additives that endanger the public health is permitted after the agency has considered "other technologically or economically *feasible* means of achieving emission standards * * *." In contrast, control or prohibition of additives that may impair effective operation of emission control devices is permitted only after consideration of *"a cost benefit analysis"* comparing device performance with and without the control or prohibition. 42 U.S.C. (Supp. III) 7545 (c)(2)(A) and (B) (emphasis added). See *Benzene, supra,* slip op. 23 n.27 (Marshall, J., dissenting) ("This approach demonstrates a legislative awareness of the difference between a feasibility constraint and a constraint based on weighing costs and benefits").

Later Congresses have also recognized this difference. For purposes of the 1977 effluent limitations established by the Federal Water Pollution Control Act Amendments of 1972, Congress required the "best practicable control technology currently available," which was to be determined by consideration of, *inter alia,* "the total cost of application of technology in relation to the effluent reduction benefits to be achieved" (33 U.S.C. 1311(b)(1)(A), 1314 (b)(1)(B)). With respect to the 1987 effluent limitations, however, Congress required the "best available technology economically achievable"; while "costs" were to be considered, no direct comparison of costs and benefits was required. See *EPA* v. *National Crushed Stone Ass'n, supra,* slip op. 5-6. And Section 325(a) of the Energy Policy and Conservation Act of 1975, 42 U.S.C. 6295, which requires the promulgation of energy conservation standards, specifies that a standard must be "economically justified." A standard was economically justifiable only if the Secretary found that the benefits of the standard outweighed its costs and that the standard was "economically feasible." "Feasibility" was defined as "capable of being carried out." S. Conf. Rep. No. 94-516, 94th Cong., 1st Sess. 172 (1975); H.R. Conf. Rep. No. 94-700, 94th Cong., 1st Sess. 172 (1975). But see 42 U.S.C. (Supp III) 6295.

must be adjusted. Requiring the Secretary to adjust the standard further through the cost-benefit technique that petitioners advocate would necessarily violate the "no-material-impairment" mandate of the statute by depriving employees of protection that is "feasible."

2. The cost-benefit gloss advocated by petitioners cannot be justified by resort to legislative history. That history unambiguously reflects Congress' determination that, in the case of toxic substances, affordable costs of reducing significant risks of material harm are categorically outweighed by the benefits derived from the prevention of premature death, disability, and disease. Congress' concern with the pernicious effects of exposure to toxic substances in the workplace was a primary impetus for passage of the Act. Leg. Hist. 142-143, 159-160, 411-415, 503, 510, 845-846, 1061. Congress condemned the continued unregulated presence in the workplace of the so-called "silent killers" [45] such as cotton dust, toxic substances whose harmful effects had been fairly documented; Congress was also concerned that those effects would be replicated geometrically due to the rapid introduction of new and yet untested chemicals and processes.[46]

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[45] Leg. Hist. 1044-1045 (remarks of Rep. Udall).

[46] The Senate Committee on Labor and Public Welfare stated (Leg. Hist. 142-143):

> Occupational diseases which first commanded attention at the beginning of the Industrial Revolution are still undermining the health of workers. Substantial numbers, even today, fall victim to ancient industrial poisons such as lead and mercury. Workers in the dusty trades still contract various respiratory diseases. Other materials long in industrial use are only now being discovered to have toxic effects. In addition, technological advances and new processes in American industry have brought numerous new hazards to the workplace. * * * [N]ew materials and processes are being introduced into industry at a much faster rate than the present meager resources of occupational health can keep up with. It is estimated that every 20 minutes a new and potentially toxic chemical is introduced into industry. New processes and new

Congress recognized that the boldness of its legislation would have to match the seriousness of the problems presented. The Act would thus have to fill the "unconscionable gap between the minimal protection being given to [employees] and the protection they need" (Leg. Hist. 1045 (remarks of Rep. Udall)). Generally, the level of protection would have to be more stringent than that provided by the previously voluntary consensus standards.[47] With respect to toxic substances, Congress made clear that workers should remain healthy even if they spent their entire working lives in the industry. It was not acceptable to expect workers to be harmed, perhaps irreparably, and then move on to safer employment. As Senator Dominick remarked (Leg. Hist. 502-503; emphasis added):

> [W]hat we are doing now is to say that the Secretary has got to use his best efforts to promulgate the *best* available standards, and in so doing, that

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sources of energy present occupational health problems of unprecedented complexity.

Recent scientific knowledge points to hitherto unsuspected cause-and-effect relationships between occupational exposures and many of the so-called chronic diseases—cancer, respiratory ailments, allergies, heart disease, and others.

* * * * *

Studies of particular industries provide specific emphasis regarding the magnitude of the problem. For example, despite repeated warnings over the years from other countries that their cotton workers suffered from lung disease, it is only within the past decade that we have recognized byssinosis as a distinct occupational disease among workers in American cotton mills.

See also *id.* at 844-846 (House Report).

[47] The House Report emphasized the minimalist character of national consensus standards (Leg. Hist. 848):

> Voluntary standards set by the consensus method represent the lowest common denominator of change in the status quo that is necessary to achieve acceptance. Now that we have chosen the force of law to command acceptance of safety and health regulations, this method should not apply.

> he should take into account that *anyone working in toxic agents or physical agents which might be harmful may be subjected to such conditions for the rest of his working life*, so that we can get at something which might not be toxic now, if he works in it a short time, but if he works in it the rest of his life it might be very dangerous; and we want to make sure that such things are taken into consideration in establishing standards * * *.

Congress was not unmindful that these requirements would entail substantial compliance costs. Senator Eagleton characterized these costs as "reasonable and necessary costs of doing business" (Leg. Hist. 1150) because "we can no longer permit profits to be dependent upon an unsafe or unhealthy worksite" (*id.* at 1151). Senator Yarborough, a principal sponsor of the legislation, echoed this understanding, stating that the cost of compliance was "the price we should pay for the 80 million workers of America" (*id.* at 444). Senator Yarborough also responded to the assertion by some critics that the costs of protection would be too great. He noted that the increased costs "would be put into consumer goods" (*id.* at 444), and further stated (*id.* at 510):

> One may well ask too expensive for whom? * * * Is it too expensive for the employee who loses his hand or leg or eyesight? Is it too expensive for the widow trying to raise her children on meager allowance under workmen's compensation and social security? * * *
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> * * * * *
>
> We are talking about people's lives, not the indifference of some cost accountants. We are talking about assuring the men and women who work in our plants and factories that they will go home after a day's work with their bodies intact.

Congress anticipated that new standards could purchase greater protection only through greater costs, but it was not prepared to allow feasible standards to be

relaxed to accommodate particular employers. For instance, Congress recognized that small firms might face relatively greater economic burdens, but it refused to ease those burdens by lowering standards. Instead, Congress chose to assist such firms through government loans. Leg. Hist. 525-526; 15 U.S.C. 636(b)(5). See S. Rep. No. 93-132, 93d Cong., 1st Sess. 3 (1973). Moreover, Congress explicitly provided that temporary variances from a standard could not be based on economic hardship. 29 U.S.C. 655(b)(6)(A)-(B); Leg. Hist. 1188, 1201. Compare 29 U.S.C. 655(d). To guarantee the continued existence of every employer would permit employers who have lagged behind in safety and health protection to perpetuate their competitive advantage and frustrate the achievement of the legislative purpose.[48] See *EPA* v. *National Crushed Stone Ass'n*, *supra*, slip op. 14-18. Congress recognized that the standards to be imposed might significantly increase the cost of doing business, but it adjudged that the costs nonetheless should be imposed so long as they were feasible for the industry as a whole.

No Member of Congress so much as suggested that, because of cost-benefit considerations, the Secretary must tolerate risks of material health impairment, caused by toxic substances, when those risks could be eliminated feasibly. Given the length and thoroughness of the legislative inquiry prior to passage of the Act, the omission

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[48] Congress found little natural economic incentive for employers to invest capital in safety and health protection. Because employees often move from job to job, "an employer investing in current occupational health precautions would receive no future benefits, not even in the reduction of workmen's compensation costs. He might be paying for the past neglect of another employer. Uniform enforcement will also reduce or eliminate the disadvantage that a conscientious employer might experience where inter-industry or intra-industry competition is present." Leg. Hist. 854 (House Report). Moreover, "many employers—particularly smaller ones—simply cannot make the necessary investment in health and safety, and survive competitively, unless all are compelled to do so." Leg. Hist. 144 (Senate Report).

of any reference to a matter as significant as a cost-benefit analysis "cannot be deemed inadvertent." *Benzene, supra,* slip op. 32 (Marshall, J., dissenting).

Petitioners support their contention that the statute requires a cost-benefit justification principally by reference to qualifying language contained in the Act: "most adequately" assures, "to the extent feasible," that no "material" impairment will occur (ATMI Br. 31-34). The Secretary does not dispute that this language mandates consideration of practical concerns, including costs, in the setting of standards. Neither Congress nor the Secretary has ever contended that this legislation does or should license the agency to attempt to achieve absolute occupational safety and health. But neither do these qualifying phrases insist upon a balancing of costs and benefits as the assurance that standards will be realistic.

A standard can "most adequately" assure protection when the benefits to be produced are significant and the costs are feasible. Furthermore, "material" impairment plainly refers to the severity of the health or safety consequences and to the degree of risk of suffering those consequences. *Benzene, supra,* slip op. 31-33 n.48. The concept of "material impairment" unquestionably limits the Secretary's standard-setting authority. Assessing the gravity and likelihood of adverse health consequences, however, does not logically entail a comparison of those consequences with the costs of avoiding them.[49] Hence, Congress' decision that "the" standard must protect against "material" impairment, rather than "any" impairment, does not suggest that avoidance of a "ma-

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[49] For example, two substances may be equally likely to cause cancer. It may cost very little to minimize exposure to one, while it may be difficult and very costly to prevent exposure to the other. Contrary to petitioners' contention (ATMI Br. 38-40), it makes little sense to regard the potential impairment caused by unregulated exposure to one substance as more "material," or the risk of one as less "significant," than the other.

terial" impairment must be justified on a cost-benefit basis.[50]

3. The pattern and structure of the Act as a whole also demonstrate that Congress did not intend health protection in this area to depend on an individualized balancing of costs and benefits with respect to every standard. Congress' express purpose was to create safe and healthful workplaces "so far as possible" (Section 2 of the Act, 29 U.S.C. 651). The Act imposes on employers the general duty to furnish workplaces "which are free from recognized hazards that are causing or are likely to cause death or serious physical harm * * *" (Section 5(a)(1) of the Act, 29 U.S.C. 654(a)(1)). It

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[50] The legislative history indicates that Congress substituted the term "material impairment" for "any impairment" to ensure that the Secretary would not be required to regulate trifling or remote hazards such as mosquito or black-fly bites. Leg. Hist. 345 (remarks of Sen. Dominick). Petitioners also rely (ATMI Br. 34) on the compromise reached by the conference committee, which resulted in the use of the "substantial evidence" scope of judicial review, rather than the "arbitrary and capricious" standard. See Section 6(f) of the Act, 29 U.S.C. 655(f). The substantial evidence standard reflects a legislative judgment that the Secretary should develop standards on a relatively formalized basis by providing a hearing and a record capable of review. Leg. Hist. 298-299, 884, 1053. But these procedural concerns do not show that Congress intended to protect industries from all costs that were not, in their view, "reasonably related" to benefits. *Florida Peach Growers Ass'n* v. *Department of Labor*, 489 F.2d 120 (5th Cir. 1974), cited by petitioners (ATMI Br. 34), suggests only that Congress was concerned about avoiding the imposition of "arbitrary burdens" on employers (489 F.2d at 128). The Fifth Circuit cites no legislative history to elucidate the manner in which a burden might be "arbitrary," and the sole reference relied on by ATMI here is totally inapposite. ATMI relies (ATMI Br. 34 n.70) on the remarks of Senator Cook with respect to the "arbitrary and capricious" test for judicial review. Leg. Hist. 342-344. But these remarks related to judicial review of the Secretary's veto of a state plan for regulating occupational health, not to judicial review of an occupational health standard or to the prospect that costs might be out of proportion to benefits. *Ibid.* Accordingly, this legislative compromise sheds no light on the issue whether a standard must satisfy a cost-benefit test.

is not enough that a workplace be "reasonably free" of hazards; it must be as free of serious hazards as possible. See *National Realty and Construction Co.* v. *OSHRC*, 489 F.2d 1257, 1265-1266 (D.C. Cir. 1973). Likewise, in choosing among alternative existing standards during the first two years after the Act became effective, the Secretary was required to "promulgate the standard which assures the greatest protection of the safety or health of the affected employees" (Section 6(a) of the Act, 29 U.S.C. 655(a)). Where a new standard deals with toxic substances, Section 6(b)(5) requires that the Secretary adopt "the" standard that "most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life" (29 U.S.C. 655(b)(5)). Finally, variances may be obtained, but only on limited grounds that do not include financial hardship. 29 U.S.C. 655(b)(6)(A)-(B), 655(f). Leg. Hist. 1188, 1201.

The statute thus was designed to ensure the highest possible degree of employee protection against significant risks of material harm, particularly in the case of toxic substances. The urgent call for highly protective standards to prevent significant risks of material impairment derived from a lifetime of exposure, the refusal to allow variances for economic hardship, and the provision of economic relief only through loans for small businesses, all show that Congress carefully considered and limited the role that cost considerations should play here, a role that does not include the lowering of feasible standards. There is no warrant to read into this statute "what Congress has studiously omitted." *FTC* v. *Simplicity Pattern Co.*, 360 U.S. 55, 67 (1959). See *Transamerica Mortgage Advisors, Inc.* v. *Lewis*, 444 U.S. 11, 20 (1979); *Great Atlantic & Pacific Tea Co.* v. *FTC*, 440 U.S. 69, 78-79 (1979).

Petitioners contend, however, that the Secretary's view of his mandate would push the industry to the brink of ruin (ATMI Br. 31). In our view, Congress' insertion of the feasibility requirement was specifically designed to preclude that draconian result and to assure that standards would be "reasonable" and "practical." We agree that the economic feasibility requirement limits the Secretary's authority to set standards for toxic substances. Moreover, were an economic feasibility test as ineffectual as the industry suggests, Section 6(b)(5) would be a harsh provision indeed. Consistent with the intent of Congress, however, the Secretary has construed the "capable of achievement" criterion in a reasonable and practical fashion that provides a meaningful brake on regulation.[51]

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[51] Accordingly, petitioners' argument is not advanced even if, as they assert (ATMI Br. 32-33), Congress regarded the terms "reasonable" and "practical" as a gloss on "feasible," because the Secretary's application of the feasibility limitation results in reasonable and practical standards. Petitioners rely in the main on the remarks of Senator Javits, the original author of the feasibility amendment, to suggest that the term was meant to include something in the nature of "reasonableness" or "practicality." But petitioners' reading of the legislative history is deficient because Senator Javits did not use those words to describe his amendment. Senator Javits introduced the Nixon Administration's original bill (S. 2788, 91st Cong., 1st Sess. (1969)), which would have required the board responsible for issuing health and safety standards to submit its proposals to certain organizations for a report on "the technical feasibility, reasonableness and practicality of such standard." Leg. Hist. 38-39; 115 Cong. Rec. 22511 (1969). Contrary to ATMI's assertion, Senator Javits did not "describe" the report in terms of "reasonableness" and "practicality." The "description" of the report was made by President Nixon in his message concerning the Administration bill. See 115 Cong. Rec. 22511, 22517 (1969). Senator Javits specifically disassociated himself from the Administration's bill on a variety of issues, stating that "it may be desirable to go somewhat further than this bill does in strengthening the hand of the Federal Government in this area" (*id.* at 22512). Significantly, when Senator Javits actually described his feasibility amendment, he consistently used only the word "feasible"; he never equated "feasible" with "reasonable" or "practical"

As the court stated in *Industrial Union Department* v. *Hodgson*, 499 F.2d 467, 478 (D.C. Cir. 1974), Congress did not "intend[] to protect employees by putting their employers out of business." The Secretary's overall purpose, therefore, is to assure that the industry is able to finance the costs of compliance, as well as other "reasonable and necessary costs of doing business" (Leg. Hist. 1150). At bottom, the Secretary must determine that the industry will maintain long-term profitability and competitiveness. Cf. *FPC* v. *Hope Natural Gas Co.*, 320 U.S. 591, 605 (1944). See also *United Steelworkers of America* v. *Marshall*, No. 79-1048 (D.C. Cir. Aug. 15, 1980), slip op. 144. It is against these benchmarks that the Secretary makes his economic feasibility determination, and he does in fact perform an extensive economic analysis involving a wide variety of factors in developing standards.

Thus, the Secretary's consideration of economic feasibility is far different from the industry's characterization, which implies that application of the feasibility test could result in nearly bankrupting an industry. As is evident from the Secretary's analysis of the impact of the cotton dust standard (see pages 14-22, *supra;* pages 63-65, *infra*), numerous economic factors were taken into account in making the determination of economic feasibility in this case. The Secretary closely examined the availability of capital to the industry, the extent to which cap-

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(Leg. Hist. 197, 418). Furthermore, Senator Javits stated that the Senate Committee bill was "an improvement over * * * the Administration bill, which contains no criteria for standards at all (*id.* at 197)." Hence, rather than believing that he had incorporated criteria contained in the Administration bill, Senator Javits thought that that bill lacked any such criteria. Similarly, petitioners' reference (ATMI Br. 34-35) to congressional remarks on the need for a "balanced" bill is of little additional significance; Congress did indeed create a "balanced" bill. It balanced the economic consequences against the health of the nation's employees, but it did not authorize the agency to overturn that balance by means of a cost-benefit test.

ital was required for other purposes, the industry's profit history, the industry's ability to absorb costs or pass them on to the consumer, the impact of higher costs on demand, and the impact on competition with substitutes and imports.[52]

With the exception of the Fifth Circuit,[53] no court of appeals has held that the Secretary must perform a cost-benefit analysis in setting standards to regulate employee exposure to toxic substances in the workplace.[54] The issue was first considered by the District of Columbia Circuit in connection with the asbestos standard in *Industrial Union Department* v. *Hodgson, supra.* In that case, the court noted that the feasibility requirement mandates that the Secretary steer his course between the often opposing poles of preserving an industry's financial viability and declining to reinforce the competitive advantage of firms that have failed to expend resources on safety (499 F.2d at 478; footnote omitted):

> This qualification is not intended to provide a route by which recalcitrant employers or industries may avoid the reforms contemplated by the Act. Standards may be economically feasible even though, from the

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[52] Where technologies are not fully developed, the analysis is necessarily more complicated. For example, in the lead standard, the agency listed six additional factors that may appropriately enter such determinations. 43 Fed. Reg. 54474-54476 (1978).

[53] See *American Petroleum Institute* v. *OSHA*, 581 F.2d 493 (5th Cir. 1978), aff'd on other grounds, *Industrial Union Department* v. *American Petroleum Institute*, No. 78-911 (July 2, 1980). Accord, *Texas Independent Ginners Ass'n* v. *Marshall*, 630 F.2d 398, 412-413 (5th Cir. 1980).

[54] Petitioners apparently do not contest the accuracy of this statement (see ATMI Br. 41), but suggest that some significance should be attributed to the fact that other courts have not "considered explicitly the nature of the economic impact assessment that is required * * * to comply with Section 3(8) as well as Section 6(b)(5) of the Act" (*ibid.*). Whatever weight should be given to Section 3(8), it should not be assumed that the courts were unaware of that section. Petitioners' argument also rests on two cases that are inapposite here. See page 51, note 56, *infra*.

> standpoint of employers, they are financially burdensome and affect profit margins adversely. Nor does the concept of economic feasibility necessarily guarantee the continued existence of individual employers. It would appear to be consistent with the purposes of the Act to envisage the economic demise of an employer who has lagged behind the rest of the industry in protecting the health and safety of employees and is consequently financially unable to comply with new standards as quickly as other employers.

Accord, *AFL-CIO* v. *Brennan*, 530 F.2d 109, 123 (3d Cir. 1975); *American Iron and Steel Institute* v. *OSHA*, 577 F.2d 825, 836 (3d Cir. 1978), cert. dismissed, No. 78-918 (Sept. 10, 1980). See *Society of Plastics Industry, Inc.* v. *OSHA*, 509 F.2d 1301 (2d Cir.), cert. denied, 421 U.S. 992 (1975).[55] This test for economic feasibility is both reasonable and fully consistent with the congressional intent to provide the greatest protection possible against significant risks of material harm.[56]

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[55] This test has also been approved in other safety and health contexts. The 1972 amendments to the Federal Water Pollution Control Act, for example, provide that 1983 effluent limitations should be based on "the best available technology economically achievable" (33 U.S.C. 1311(b)(2)(A)). The courts have held that a standard is "economically achievable" even if it is costly and may close some marginal plants, so long as the costs may reasonably be borne by the industry as a whole. See *American Iron and Steel Institute* v. *EPA*, 526 F.2d 1027, 1051-1052 (3d Cir. 1975); *CPC Int'l, Inc.* v. *Train*, 540 F.2d 1329, 1341-1342, 1344 (8th Cir. 1976); *American Frozen Food Institute* v. *Train*, 539 F.2d 107, 119-120, 139-140 (D.C. Cir. 1976). Moreover, contrary to ATMI's suggestion (ATMI Br. 44 n.88), the 1983 limitations were not to be set on a cost-benefit basis. See *EPA* v. *National Crushed Stone Ass'n*, No. 79-770 (Dec. 2, 1980), slip op. 5-6.

[56] Petitioners rely (ATMI Br. 42) on two cases construing the word "feasible" in the OSHA noise standard (29 C.F.R. 1910.95(b)(1)), which requires that employers utilize "feasible administrative or engineering controls" to reduce employee exposure to noise. See *Turner Co., Div. of Olin Corp.* v. *Secretary of Labor*, 561 F.2d 82 (7th Cir. 1977); *RMI Co.* v. *Secretary of Labor*, 594 F.2d 566 (6th Cir. 1979). In *Turner*, however, the court premised its decision

B. The requirement of Section 3(8) that a standard be "reasonably necessary or appropriate" does not embody a cost-benefit test

There is no merit to petitioners' additional contention (ATMI Br. 36-38) that a cost-benefit test may be in-

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on the fact that the noise standard had originally been promulgated under the Walsh-Healey Act, 41 U.S.C. 35 *et seq.*, which contained no requirement that standards be feasible, and that it was subsequently adopted as a national consensus standard under 29 U.S.C. 655(a) also without consideration of feasibility (561 F.2d at 85), The Seventh Circuit reasoned that fairness required that a cost-benefit analysis be applied in enforcing the standard in these circumstances (*ibid.*). We disagree. At most, this calls for interpreting "feasibility" to include consideration of cost—not to require a balancing of costs and benefits. Second, the court of appeals relied on its determination that noise appeared to be far less significant than other hazards that pose "serious debilitating threats" or are "life-threatening." *Id.* at 86. It was only "[i]n this perspective" that the court required the Secretary to weigh costs and benefits before regulating noise levels. In *RMI*, the Sixth Circuit followed *Turner*. The present context is significantly different because the cotton dust standard aims at a serious, debilitating and life-threatening hazard and was developed after full consideration of feasibility.

For similar reasons, ATMI's reliance (ATMI Br. 44-45) on the decisions of the Occupational Safety and Health Review Commission is misplaced. The Secretary, not the Commission, is the official entrusted by Congress with the responsibility to study occupational health and safety hazards and to set remedial standards. The Commission has neither the authority nor the expertise to investigate occupational health hazards or to decide how best to regulate them. The Commission's function is to adjudicate alleged violations of the standards that the Secretary has set. Compare Section 6(b) of the Act, 29 U.S.C. 655(b), with Section 10 of the Act, 29 U.S.C. 659. Indeed, Congress rejected the proposal to delegate standard setting power to an independent commission (see Leg. Hist. 148, 462, 1186-1187, 1191, 1192, 1201-1202), and the Commission's construction cannot bind the Secretary. Cf. *Marshall* v. *Sun Petroleum Products Co.*, 622 F.2d 1176, 1180-1183, 1186-1188 (3d Cir.), cert. denied, No. 80-471 (Dec. 15, 1980). In any event, the most recent pronouncement of the Commission shows that its three members hold widely differing views concerning the meaning of the term "feasible." *Samson Paper Bag Co.*, 3 Empl. Safety & Health Guide (CCH) ¶ 24,555 (June 16, 1980).

ferred from the statute's definition of a health standard. Section 3(8) of the Act, 29 U.S.C. 652(8), provides that a standard must be "reasonably necessary or appropriate to provide safe or healthful employment." This phrase means only that the regulation must be aimed at reducing significant risks of material harm (see *Benzene*, *supra*, slip op. 35), must adhere to the criteria laid down elsewhere in the statute, and must be rationally related to the legislative goals in passing the Act.

The statute must be construed as a harmonious whole. As we have shown above (see pages 39-47, *supra*), the requirement of a cost-benefit anaylsis is not reconcilable with Section 6(b)(5) of the Act, the principal provision relating to standards for toxic substances. Moreover, the legislative history contains nothing to warrant the conclusion that Section 3(8), in contrast to Section 6(b)(5), was intended to incorporate a requirement that costs and benefits be weighed. Indeed, while Section 6(b)(5) was the subject of vigorous debate prior to passage of the Act, Section 3(8) received virtually no comment.[57] There is no basis, therefore, for clothing Section 3(8) with a substantive requirement so inconsistent with that supplied in Section 6(b)(5). To do so would " 'impute to Congress a purpose to paralyze with one hand what it sought to promote with the other.' " *Weinberger* v. *Hynson, Westcott & Dunning*, 412 U.S. 609, 631 (1973), quoting *Clark* v. *Uebersee Finanz-Korp*, 332 U.S. 480, 489 (1947).

Nor does the plurality opinion in *Benzene* suggest a contrary conclusion. While the plurality held that Section 3(8) requires a threshold finding of a significant risk of harm, the plurality also found that threshold to be implied in Section 6(b)(5)'s reference to "toxic" sub-

[57] All but one of the original bills contained a definition of "occupational safety and health standard" that was either similar or identical to that eventually enacted. Leg. Hist. 3, 35, 78, 532, 601, 631, 683, 725, 768, 937. The legislative history appears to contain no reference to these provisions, however, except in the section-by-section analyses of the committee reports.

stances, "harmful" physical agents, and "material" impairment. Moreover, the plurality relied on general comments in the legislative history concerning the conceded impossibility of eliminating all risks. *Benzene*, *supra*, slip op. 31-33, 36-38. In contrast, petitioners' cost-benefit test is not consistent with the statute's "no material impairment" provision, either on its face or in light of the legislative history.

Petitioners' reliance (ATMI Br. 43) on other statutes containing language similar to "reasonably necessary or appropriate," and judicial interpretations of such language, is also misplaced because significant differences exist in the language, legislative histories and regulatory purposes of those statutes. The Consumer Product Safety Act (CPSA), for example, requires that, as a predicate to finding that a particular "rule * * * is reasonably necessary to eliminate or reduce an unreasonable risk of injury," the Consumer Product Safety Commission (CPSC) must determine "the need of the public for the consumer products subject to such rule, and the probable effect of such rule upon the utility, cost, or availability of such products to meet such need." 15 U.S.C. 2058(c)(1)(C), (c)(2)(A).[58] That language, specifically requiring that costs be justified by benefits, is not found in either the text or the legislative history of the Occupational Safety and Health Act.[59] A further critical distinction between

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[58] The legislative history of the CPSA expressly indicates the congressional intent that standards would be determined by balancing these considerations: "It is generally expected that the determination of unreasonable hazard will involve the Commission in balancing the probability that risk will result in harm and the gravity of such harm against the effect on the product's utility, cost, and availability." H.R. Rep. No. 92-1153, 92d Cong., 2d Sess. 33 (1972). See S. Rep. No. 92-749, 92d Cong., 2d Sess. 7 (1972).

[59] The regulatory purposes of the National Traffic and Motor Vehicle Safety Act, 15 U.S.C. 1381 *et seq.*, on which petitioners rely (ATMI Br. 44 n.88), are similarly distinguishable. For example, the vehicle safety standard reviewed in *H&H Tire Co.* v. *Department of Transportation*, 471 F.2d 350 (7th Cir. 1972), was designed to make retreaded tires safer, but the costs thus created threatened to make retreads unavailable to those consumers who

the two statutes must also be noted: the risks and benefits of a consumer product accrue to the same party, the consumer, who can choose to avoid the risk. Employees, on the other hand, rarely have such a choice—they must bear the risk of occupational health hazards, while benefits accrue largely to employers and consumers. Although the Secretary's authority is limited to eliminating "significant" risks, it does not follow that this limitation has the same content as the "unreasonable" risk limitation placed on the CPSC.

C. A cost-benefit test is not necessary to prevent serious economic disruptions or serious misallocation of scarce resources for combating occupational disease

The recurring theme of petitioners' argument is that only the imposition of a cost-benefit requirement can prevent a serious misallocation of societal resources. Even if there were a realistic possibility that the statute might

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would supposedly benefit from the standard. *Id.* at 355. In light of Congress' unambiguously stated intent that retreads were to remain available, the likely result of the regulation could not be "appropriate" within the meaning of 15 U.S.C. 1392(f)(3). *Ibid.* Moreover, the legislative history of that statute indicates that the agency was to consider not only feasibility, but also "reasonableness of cost." S. Rep. No. 1301, 89th Cong., 2d Sess. 6 (1966).

Petitioners also rely (ATMI Br. 45) on the Environmental Protection Agency's decision to consider the cost of further reducing risks posed by airborne carcinogens in determining whether a national emission standard provides an "ample margin of safety." 44 Fed. Reg. 58642, 58661 (1979); 42 U.S.C. (Supp. III) 7412(b)(1)(B). In discussing this decision (44 Fed. Reg. 58660-58661 (1979)), EPA noted that the elimination of all risks posed by air pollutants was impossible and concluded that Congress could not have intended this requirement to force the closing of major industries. The Secretary, of course, pursues the same policy in setting OSHA standards. The critical distinction, however, is that Congress, in Section 6(b)(5) of the Act, gave guidance to the Secretary with respect to how he should weigh the economic consequences of regulation. That guidance is less obvious in EPA's "ample margin of safety" requirement. Once EPA had determined that its statutory discretion permitted the consideration of costs, it was perhaps appropriate for the agency to engage in balancing risks against costs. No such discretion exists here.

result in a misallocation of resources, it would provide no basis for the courts to overrule the policy judgments of Congress. See page 37, note 42, *supra*. In any event, the Secretary's construction and administration of the statute has not resulted in the misapplication of resources and does not threaten to put industries to the brink of ruin (see pages 48-51, *supra*). The regulatory process guards against such misallocations in numerous ways.

First, Section 6(g) of the Act, 29 U.S.C. 655(g), provides that, "[i]n determining the priority for establishing standards under this section, the Secretary shall give due regard to the urgency of the need for mandatory safety and health standards for particular industries, trades, crafts, occupations, businesses, workplaces or work environments." To the extent possible, therefore, in determining where the need for prompt rulemaking is the greatest, the Secretary assesses relative risks, costs, and benefits. The Secretary's obligation to address hazards in the order of their severity provides substantial assurance that resources will be applied in a rational manner. See 45 Fed. Reg. 5284-5285 (1980).

Second, the Secretary may regulate only *significant* risks of *material* harm. See *Benzene*, *supra*, slip op. 29. That limitation likewise assures that resources will be devoted to eliminating or reducing only substantial threats to employee health. Third, the statute permits the Secretary to select the least expensive means of compliance that will provide an adequate level of protection.[60] That general principle is underscored by the variance provision of the Act, which permits employers to use alternative compliance methods that are as "safe and

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[60] Of course, the Secretary may not choose a less costly standard that does not provide the level of protection required by the statute. In the case of the cotton dust standard, the Secretary rejected the industry's alternative on that ground. By contrast, the Secretary found in the lead standard rulemaking proceedings that engineering and non-engineering controls provided equally effective compliance methods. Thus, the lead standard permits employers to achieve the PEL through either, or a combination, of these methods. 43 Fed. Reg. 52990 (1978).

healthful" as those provided by the general standard. Section 6(d) of the Act, 29 U.S.C. 655(d).

Fourth, a standard aimed at reducing exposure to one harmful substance frequently will also protect against many other harmful substances because engineering controls generally remove all air contaminants.[61] Fifth, limitations of technological feasibility will often limit expenditures of financial resources because, as here (see pages 12-14, *supra*), it will often be impossible to achieve the degree of stringency that is actually warranted by the health data. Sixth, the standard must be financially affordable, a requirement that obligates the Secretary to consider the costs of the standard in light of the industry's overall financial condition and competing needs for capital, including the need to protect against more serious health hazards.[62]

Seventh, the Secretary gives additional consideration to financial costs in determining the period of time that should be allowed for compliance. In the present case, for instance, the Secretary allowed the industry four years in which to institute engineering controls; in the lead standard, the Secretary provided for periods ranging from five to ten years. See 43 Fed. Reg. 52983-52984, 53008 (1978). Finally, the Secretary's enforcement policy takes account of financial hardship on an individualized basis. The Industrial Hygiene Field Operations Manual, U.S. Department of Labor, Occupational Safety and Health Administration (1980), provides that, based on an employer's economic situation, the Secretary

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[61] For instance, compliance with the lead standard by primary lead smelters will achieve substantial compliance with the arsenic standard. See 43 Fed. Reg. 54354, 54494 (1978). Likewise, engineering controls required by the coke oven emissions standard will also reduce benzene levels. 43 Fed. Reg. 5937, 5944-5945, 5948 (1978).

[62] The textile industry objected to the cotton dust standard by pointing to OSHA's proposal for more stringent controls on workplace noise levels as a potentially competing need for capital (J.A. 258-261). The Secretary pressed forward with the present standard, however, because of his judgment that byssinosis is a more urgent health problem in this industry.

may extend the period within which a violation must be corrected.[63] Compare *United Steelworkers of America* v. *Marshall*, No. 79-1048 (D.C. Cir. Aug. 15, 1980), slip op. 161-163.

One need look no further than the present case for an apt illustration of the reasonableness and practicality of the Secretary's regulatory approach. Although the RTI study suggested that the 200 ug/m^3 PEL would not drive the industry to the brink of bankruptcy, RTI also determined that the cost impact of the proposed level would be severe in the weaving sector, because it might require the physical reconstruction of 90% of all weave rooms. The Secretary therefore concluded that the 200 ug/m^3 level was not feasible for weaving and that the 750 ug/m^3 level was all that could reasonably be required.

It is obvious from the foregoing discussion that the Secretary's approach to regulation in this area bears little resemblance to the version portrayed by petitioners,[64] and it is not likely to result in a serious misallocation of resources. Indeed, the Secretary's administration of the statute, when viewed in its entirety, shows that the Secretary takes into account cost implications to the fullest extent permitted by the Act. At bottom, petitioners' quarrel is with the fact that the statute does

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[63] The manual provides (ch. 1, § I(4)(b)):

> The employer's economic cost of correction is generally not considered to be a factor in the issuance of a citation.
>
> (1) However, if the cost of implementing effective engineering, administrative or work practice controls, or combination, would so seriously jeopardize the employer's financial condition so as to result in the probable shutdown of the establishment or a substantial part of it, an extended correction date may be set.

[64] Nor must the Secretary's interpretation of Section 6(b)(5) be abandoned on the hypothetical ground that he might someday promulgate a standard the costs of which would be entirely disproportionate to the benefits. "[T]o put an extreme case is not a good test of the fair and just interpretation of any statute." *United States* v. *Dickson*, 40 U.S. (15 Pet.) 141, 164 (1841) (Story, J.).

not go so far as they would like: it does not authorize a cost-benefit analysis in the standard-setting determination.

For their part, petitioners would engraft upon the statute a balancing test that would require the Secretary to determine whether the benefits of a standard bear a "reasonable relationship" to its costs. Apparently in recognition of the fundamental problems with that approach, petitioners quickly add that they do not mean to suggest any need for a "rigidly formal cost-benefit calculation that places a dollar value on employee lives or health" (ATMI Br. 39.). But there is no other way to perform a meaningful cost-benefit analysis.[65] Unless there was agreement as to the dollar value of the benefits to be gained, any determination that costs and benefits are "reasonably related" would be arbitrary.[66] Hence, placing a value on human life and freedom from suffering is an indispensable part of petitioners' program.

At all events, any attempt to employ cost-benefit analysis in this area would have to overcome a number of serious obstacles. As just noted, if costs and benefits are to be compared, they must be computed in the same

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[65] A "formal" cost-benefit analysis may be characterized as one that seeks to weigh the costs and benefits of a particular course of action by computing and comparing the net present values of both the costs and the benefits. As applied to the setting of occupational health standards, the benefits of improved health would have to be valued in monetary terms and then compared with the costs associated with the regulation.

In any event, petitioners' assertion (ATMI Br. 39) that a cost-benefit analysis would not "predetermine the decisions that OSHA must make" is disingenuous at best. Under petitioners' theory, the results of such an analysis would necessarily dictate the ultimate determination. If the results showed that costs were not "reasonably related" to benefits, the standard would have to be adjusted. Otherwise, the exercise is pointless.

[66] We do not mean by this that analyses of the costs and benefits of achieving a given level of regulatory stringency are useless or should be avoided in contexts where they are warranted. In some contexts, they provide valuable information, and their use has been encouraged by the President. Exec. Order No. 12044, 43 Fed. Reg. 12661, 12663 (1978).

units, which means that benefits must be assigned a dollar value. Even the assessment of the dollar costs of avoiding lost wages and medical expenses, which are already valued quantitatively, would be a prodigious undertaking. To be accurate, these calculations would require comprehensive data on the affected workforce, including age and earnings profiles, medical histories, postretirement experience, and premature death tables. Cost information concerning an employer's increased workers' compensation and medical insurance premiums, direct health care costs, and indirect productivity losses resulting from excess absenteeism, worker turnover, and other related inefficiencies also would have to be taken into account. See 41 Fed. Reg. 46751 (1976); 45 Fed. Reg. 5248 (1980). Even if reliable data were available for an entire industry, which is unlikely, there remain the insurmountable problems of placing a wholesale economic value on the pain, suffering, and premature deaths that will be visited upon the workforce of an industry, which is necessarily composed of persons with widely different characteristics and circumstances.[67]

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[67] Pain and suffering attendant to group illness and injury are not easily reducible to monetary terms. 41 Fed. Reg. 46751 (1976); 45 Fed. Reg. 5248 (1980). There is no generally accepted method for valuing such considerations, even implicitly. See Senate Comm. on Governmental Affairs, 95th Cong., 2d Sess., Study on Federal Regulation, Vol. VI, at XXIV (Comm. Print 1978). Attempts have been made, however, to attach a value to life itself for this type of analysis. One such approach, the "human capital" approach, calculates the value of an individual life by computing the present value of future income as a measure of the individual's contribution to the national economy. Because this valuation system depends on earning levels, it leads to lower values on the lives of retired workers, women, and other low wage groups such as textile workers. This calculation also necessarily assumes that there is no other value to human life than producing income to maximize the gross national product. Another type of valuation has attempted to analyze wage rates for high risk jobs and to utilize the so-called "risk premium" paid for such jobs as a measure of a life. This analysis necessarily, and probably incorrectly, assumes that employees have the freedom to move to lower-risk jobs and that they have adequate knowledge to make a well-informed choice. It was for these reasons that the

Moreover, there would have to be general agreement whether a stream of health benefits and saved lives extending into the future should be ignored, discounted to present value, or otherwise calculated. A cost-benefit analysis of the cotton dust standard, for example, would surely have to consider more than the current employees in the industry. The permanent technological health improvements required by the standard would benefit untold millions of future employees as well. See *Benzene, supra*, slip op. 15 n.22 (Marshall, J., dissenting).

Another defect in traditional cost-benefit analysis is that it cannot account for those considerations of equity that underlay the very concept of occupational health regulation. While the cost-benefit technique has gained some adherents as an allegedly value-free method for dealing with all manner of difficult questions, this technique originated in the context of investment capital decisions, where costs and benefits not only were already expressed in dollars, but also accrued to the same party. In occupational health regulation, however, employees bear the risk of occupational disease, while consumers and employers may acquire some benefit if the risk is not curbed. See 45 Fed. Reg. 5249 (1980). The unequal distribution of costs and benefits in this context necessarily raises the question of this statute's purpose and its determination of what is equitable; the mere calculation of costs and benefits cannot supply that answer.[68]

Secretary concluded that there was no adequate methodology to quantify the value of a life. 41 Fed. Reg. 46751 (1976); 45 Fed. Reg. 5248 (1980). These problems are necessarily compounded, of course, when the calculations purport to give some economic value to large numbers of lives. See generally Note, *Cost-Benefit Analysis for Standards Regulating Toxic Substances Under the Occupational Safety and Health Act:* American Petroleum Institute v. OSHA, 60 B.U.L. Rev. 115 (1980).

[68] In addition to the problems inherent in attributing a dollar value to benefits, a cost-benefit analysis depends for its accuracy on the quality of available information concerning the extent of the risk. While the agency had the benefit of the comprehensive dose-response curve derived from Dr. Merchant's data in the case of cotton dust, this may well be the exception rather than the rule. Quantitative risk assessments typically yield only crude and inexact

Clearly, petitioners' technique for determining the appropriate stringency of a standard is not the panacea that they claim it to be. As the court of appeals concluded (Pet. App. 76-77; footnotes omitted):

> [C]ost-benefit analysis would not necessarily improve agency health and safety determinations. These techniques require the expression of costs, benefits and performance in often arbitrary, measureable terms. They may hide assumptions and qualifications in the seeming objectivity of numerical estimates. Especially where a policy aims to protect the health and lives of thousands of people, the difficulties in comparing widely dispersed benefits with more concentrated and calculable costs may overwhelm the advantages of such analysis.

The Secretary assessed the benefits of the cotton dust standard, which he found to be "appreciable," and he found the costs to be both economically and technologically feasible. Thus, the test established by Congress was satisfied. Petitioners' alternative would assure no better result.

In light of this conclusion, it follows that Section 6 (b) (5), as construed and applied by the Secretary, does not constitute an impermissible delegation of legislative power. Cases such as *A.L.A. Schechter Poultry Corp.* v. *United States*, 295 U.S. 495 (1935), and *Panama Refining Co.* v. *Ryan*, 293 U.S. 388 (1935), are inapposite because the Secretary has not been given broad, uncanalized authority to restructure the entire economy. On the contrary, the statute directs the Secretary to

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numerical indicators of risk because large numbers of uncertainties are involved. Although there may be substantial evidence of risk as a qualitative matter, numerical figures assigned to different exposures could well be erroneous by several orders of magnitude. Thus, a great degree of uncertainty would be implicit in any cost-benefit calculation in this context. On the cost side, moreover, the agency's experience with the vinyl chloride regulation shows that predictions of anticipated expenses may be grossly inflated when compared to actual expenses. See Doniger, *Federal Regulation of Vinyl Chloride: A Short Course in the Law and Policy of Toxic Substances Control*, 7 Ecol. L.Q. 497 (1978).

carry out the legislative mandate for a safe and healthful workplace but not "to protect employees by putting their employers out of business * * * by making financial viability generally impossible." *Industrial Union Department* v. *Hodgson*, *supra*, 499 F.2d at 478. OSHA, like other regulatory bodies, is empowered to order changes in the way that business is conducted, but that authority is not the roving commission that petitioners suggest; it is an authority to enforce the terms of a specific statute, which the Secretary has done in a manner that avoids unreasonable results and serious misallocations of resources.

Although the Secretary's authority in the area of occupational health and safety is admittedly far reaching, it is no greater than Congress thought necessary to combat a serious and complex—but precise—national problem, whose manifestations exist in extraordinary variety. The statutory language provides an adequate and intelligible standard to guide the Secretary in fulfilling these responsibilities. And in administering the statute, the Secretary must follow a procedure that requires the making of a record so that Congress, the courts, and the public may determine whether the statutory criteria have been faithfully observed. See *Opp Cotton Mills, Inc.* v. *Administrator*, 312 U.S. 126, 144 (1941); *Benzene*, *supra*, slip op. 2 (Burger, C.J., concurring).

III. THE SECRETARY CORRECTLY CONCLUDED THAT THE COTTON DUST STANDARD IS ECONOMICALLY FEASIBLE

Petitioners' attack on the feasibility limitation as an illusory and meaningless restraint on the agency's authority rests in large part on their faulting of the Secretary's economic feasibility analysis in this case. However, these essentially factual arguments were rejected by the court of appeals, which concluded that substantial evidence supported the Secretary's determination that the cotton dust standard would not threaten the industry's position as a viable, competitive economic entity (Pet. App. 61-69). Although petitioner National Cotton Council asks this Court to reconsider whether substan-

tial evidence supports the Secretary's determination of economic feasibility, it has not met its burden of showing that the substantial evidence test was "misapprehended or grossly misapplied" by the court of appeals. *Golden State Bottling Co.* v. *NLRB*, 414 U.S. 168, 172 (1973), quoting *Universal Camera Corp.* v. *NLRB*, 340 U.S. 474, 491 (1951).

Petitioners do not dispute that the Secretary had voluminous information for his consideration in determining economic feasibility. Rather, they essentially contend that he had to accept either the whole of the industry submission or the whole of the RTI study. That contention is plainly insubstantial because the Secretary cannot be expected to accept cost estimates uncritically and without independent analysis. As we have shown (see pages 14-19, *supra*), the Secretary properly concluded that both studies were flawed in particular respects and that, while neither overall cost estimate was dispositive in itself, the two studies together provided sufficient data to permit the Secretary to make a reasoned determination as to the expense that the final standard would require.[69] After taking a hard look at the assumptions underlying the two cost estimates,[70] the Secretary ap-

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[69] In the court of appeals' words, the agency "tried to account for the divergence between the estimates from these two sources by exploring the assumptions each employed. After examination, the agency decided that both sets of estimates are overstatements, and chose to rely on what it regarded the best portions of each estimate" (Pet. App. 62; footnotes omitted).

[70] As we have noted (page 19, *supra*), the Secretary was somewhat handicapped because of the industry's refusal to provide supporting data. Although ATMI eventually supplied its survey data, that information merely identified existing air quantities, filtration systems, and types of fiber processed. Because the number of machines was deleted and correlated dust data were not supplied, the data could not be used to support a specific cost adjustment. Moreover, this submission did not include any of Hocutt's own data (J.A. 388-397; App. 3490-3560).

National Cotton Council's suggestion that the rationale for utilizing the industry estimate was constructed *post hoc* by agency counsel is specious. The Secretary explicitly concluded that the industry estimates were "more realistic" (43 Fed. Reg. 27373 (1978)), explicitly rejected the technological assumptions that underlay the

plied his expertise and concluded that the costs estimated by the industry would cover the likely costs of compliance with the final standard.[71] The court of appeals correctly sustained that choice as a reasonable approach to assessing the likely economic impact in these circumstances (Pet. App. 62-66).

Having found that the industry's overall cost estimate best reflected the probable compliance costs of the final standard, the Secretary then considered the question whether those costs were feasible. RTI had exhaustively analyzed the probable impact on the industry of various compliance cost levels, and the Secretary critically examined the RTI studies. As we have shown (see pages 19-22, *supra*), the Secretary concluded that those studies were reliable and that the compliance costs he had projected were therefore feasible.

IV. THE MEDICAL TRANSFER AND INCOME PROTECTION PROVISION IS WITHIN THE SECRETARY'S AUTHORITY TO IMPOSE REQUIREMENTS REASONABLY NECESSARY AND APPROPRIATE TO SECURE HEALTHFUL EMPLOYMENT

The textile petitioners contend (ATMI Br. 51-56) that the Secretary exceeded his authority by including

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industry's cost estimate and led the industry to view 500 ug/m^3 as an impenetrable barrier (*id.* at 27366-27367) and, in the case of weaving, explictly stated that he was adopting the industry estimate on the ground that the final standard would not require costly engineering controls and air requirements as estimated by RTI (*id.* at 27371).

[71] There is no merit to petitioners' suggestion (ATMI Br. 25 n.51; NCC Br. 10) that RTI's estimates, based on prices in effect in 1974, should be adjusted to reflect equipment price increases since that time. First, the Secretary adopted the industry's estimates, which were based on 1977 prices. Second, and more important, it must be assumed that the real cost of such equipment has not changed in that industry revenues as well as equipment prices have increased due to inflation. Similarly, the projected productivity loss caused by the standard's restriction on "blow-down" cleaning cannot be regarded as a significant cost, as National Cotton Council contends (NCC Br. 10-11), because the Secretary reasonably concluded that "blow-down" cleaning would necessarily become infrequent once the standard is implemented (43 Fed. Reg. 27389 (1978)).

a medical transfer and income protection provision in the cotton dust standard. This provision (29 C.F.R. 1910.1043(f)(2)(v)) specifies that when a physician determines that an employee is unable to wear a respirator, the employee must be given an opportunity to transfer, without loss of earnings or employment rights, to another position, *if one is available*, in which the dust level is at or below the permissible exposure limit. The court of appeals correctly held (Pet. App. 95-98) that the transfer and income protection provision is within the Secretary's statutory authority to impose "practices, means, methods, operations, or processes" that are "reasonably necessary or appropriate to provide safe or healthful employment." Section 3(8) of the Act, 29 U.S.C. 652(8).

The Secretary determined that it will take several years to implement the engineering controls required by the cotton dust standard and that employees should be equipped with respirators during the interim to avoid breathing air contaminated beyond the designated levels. The Secretary also determined, however, that some employees are physically unable to wear respirators due to facial structure, severe discomfort, or impaired breathing capacity (43 Fed. Reg. 27387 (1978)). The need for transfers in such a situation is obvious: if transfers are not available, employees who cannot wear respirators would be exposed to dust concentrations in excess of the PEL and would be exposed to a significant risk of material health impairment. The medical transfer provision therefore is an integral and necessary part of the statutory obligation of all employers to reduce cotton dust exposure for all employees.[72]

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[72] Petitioners contend (ATMI Br. 54) that construing the Act to authorize the Secretary to impose this requirement would also allow the Secretary to impose obligations for other programs, such as employer-sponsored food stamp programs and health spa retreats, that are arguably health related. Unlike petitioners' far-fetched hypotheticals, however, the medical transfer requirement is not merely "arguably related" to employee health. Rather, the transfer

If an employee is transferred to a lower paying job because his employer cannot otherwise comply with its statutory duty to provide a healthful workplace, the employee should not be required to suffer economic hardship. If that result occurred, the cost of protection would be placed on the employee, rather than on the employer, as Congress intended. See Leg. Hist. 144, 444, 854, 1150-1151. Furthermore, as the Secretary concluded, the record showed that, without a provision for income protection, the success of the respirator program would be impaired (43 Fed. Reg. 27387 (1978)). Experience under the Act has shown that employees are reluctant to disclose symptoms of disease and tend to minimize work-related health problems for fear of being discharged or transferred to a lower paying job (J.A. 210-212, 213-216, 218-220, 323-324, 436). It may reasonably be expected, therefore, that many employees incapable of using respirators would continue to breathe unhealthful air rather than request a transfer, thus destroying the utility of the respirator program. Hence, the transfer requirement could not be effective without a guarantee that no employee would suffer a related loss in earnings. Thus, the Secretary determined to include such a guarantee in the transfer requirement during the interim period in which an employer had not yet achieved the permissible exposure

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provision is a specific requirement aimed at reducing employees' exposure to a toxic substance; the requirement is narrowly based and directly related to the purpose of the remaining provisions of the cotton dust standard—to minimize detrimental health consequences as a result of exposure to cotton dust. Petitioners err in suggesting that the Secretary must wait for an employee to develop some material health impairment before he can provide for that employee's transfer. As this Court recently remarked in reviewing the purposes of the Act, "the legislation's remedial orientation is prophylactic in nature. * * * The Act does not wait for an employee to die or become injured. It authorizes the promulgation of health and safety standards * * * in the hope that these will act to prevent deaths or injuries from ever occurring." *Whirlpool Corp.* v. *Marshall*, 445 U.S. 1, 12 (1980).

limit through the implementation of engineering controls (43 Fed. Reg. 27387 (1978)).[73]

The statute provides ample authority for the Secretary's imposition of the transfer and income protection requirement. See *United Steelworkers of America* v. *Marshall*, No. 79-1048 (D.C. Cir. Aug. 15, 1980), slip op. 66-74. The dominant purpose of the Act is to "assure so far as possible every working man and woman in the Nation safe and healthful working conditions" (Section 2 of the Act, 29 U.S.C. 651). Congress explicitly recognized that that purpose would be achieved only "by developing innovative methods, techniques, and approaches for dealing with occupational safety and health problems" (Section 2(b)(5) of the Act, 29 U.S.C. 651(b)(5)). Section 6(b)(5) requires the agency to "set *the* standard which *most adequately* assures * * * that *no* employee will suffer material impairment of health or functional capacity * * *" (29 U.S.C. 655(b)(5) (emphasis added)), and Section 3(8) provides that a standard may require "conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment * * *." 29 U.S.C. 652(8). The medical transfer and income protection provision clearly satisfies these statutory requirements and directly advances the purpose of the Act. Although the statute does not expressly refer to transfers, "when it is remembered that safety legislation is to be liberally construed to effectuate the congressional purpose" (*Whirlpool Corp.* v. *Marshall, supra*, 445 U.S. at 13), the provision is well within the Secretary's broad statutory authority.[74]

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[73] As the court of appeals noted (Pet. App. 98), this provision is not open-ended. Once employers achieve the required reduction in dust levels, respirators will not be required for the vast majority of employees. The provision is therefore "a reasonable incentive * * * to speed compliance efforts" (*ibid.*).

[74] Petitioners attempt to show (ATMI Br. 56) that the Secretary lacks authority to require transfers by pointing out that Congress itself specifically provided for transfers and income protection in the Federal Coal Mine Health and Safety Act of 1969, 30 U.S.C.

Contrary to ATMI's contention (ATMI Br. 55), the challenged provision does not conflict with the Court's recent construction of the Act in *Whirlpool*. The congressional concern with the so-called "strike-with-pay" regulation discussed in *Whirlpool* centered on avoiding endless disputes over compensating employees for *not* working. See Leg. Hist. 416. The Court noted in *Whirlpool* that "what primarily troubled Congress about the * * * 'strike-with-pay' provision was its requirement that employees be paid their regular salary after having properly invoked their right to refuse to work * * * When it rejected the 'strike-with-pay' concept, * * * Congress very clearly meant to reject a law unconditionally imposing upon employers an obligation to continue to pay their employees their regular pay checks when they absented themselves from work for reasons of safety." 445 U.S. at 17-19. See *United Steelworkers of America* v. *Marshall, supra*, slip op. 73-75 n.69.

843(b)(2), (3), and the Clean Air Act Amendments of 1977, 42 U.S.C. (Supp. III) 7410(a)(6). But the fact that Congress, based on its study of the problems in a particular area, chose to make such a provision explicit in the statute governing that area hardly indicates that Congress intended to preclude an administrator from making a similar determination under a separate, more general health protection statute. As Senator Saxbe stated during the legislative consideration of the Act (Leg. Hist. 297-298):

> Neither bill contains, as one might reasonably imagine, a list of specific "do's and don'ts" for keeping workplaces safe and healthful. Industrial safety and health problems are as complex and changing as American industry itself. They cannot be solved by a lengthy list of prohibitions spelled out in a statute.
>
> Instead, the bills would set up a legal structure; that is, they would empower an administrative agency to issue detailed safety and health regulations, called standards, which will have the force and effect of law. * * *

See also *United Steelworkers of America* v. *Marshall, supra*, slip op. 66-74. If any inference is to be drawn from Congress' inclusion of a transfer and income provision in other statutes, it is that the Secretary's action here is fully in accord with legislative policy with respect to appropriate preventive occupational health requirements. See *Whirlpool Corp.* v. *Marshall, supra*, 445 U.S. at 13 n.18.

The transfer provision at issue here stands in sharp contrast. Rather than enabling an employee to refuse to do any work and still be paid, this provision only requires a transfer to do other work, and then only if that work is available. The transfer provision does not require employers to pay workers who have "absented themselves from work for reasons of safety." *Whirlpool Corp.* v. *Marshall, supra,* 445 U.S. at 19. Furthermore, the transfer provision may not be invoked by an employee unilaterally. The transfer is conditioned both upon a physician's determination that an employee cannot wear a respirator and upon the availability of another job. In sum, the concerns of Congress as expressed in the legislative history of the Act and as discerned by this Court in *Whirlpool* are not at odds with this reasonable, limited means of protecting employee health.

CONCLUSION

The judgment of the court of appeals should be affirmed.

Respectfully submitted.

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DECEMBER 1980

☆ U. S. GOVERNMENT PRINTING OFFICE: 1981 335729 231